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The Ohio State University, Ph.D., 1977
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PERFORMANCE EVALUATION IN CPA FIRMS: AN EMPIRICAL TEST OF AN EVALUATION MODEL OF DIRECTED JOB EFFORT

DISSERTATION

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

by

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* * * *

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ACKNOWLEDGEMENTS

This dissertation is the tangible evidence of an educational process which has been influenced by many individuals. At an early age my parents stressed the virtues of a good education. The high standards set by my old friends in Chicago and by my new friends in Columbus raised my aspirations and ultimately my performance in the doctoral program. Thomas J. Burns, my adviser and the chairman of the dissertation committee, continually challenged me by asking: "How good do you want to be?" To all of these individuals I express my gratitude.

Each member of the dissertation committee, Thomas J. Burns, John K. Shank, John V. Baumler, Richard Klimoski, Robert C. MacCallum and Jesse F. Dillard, made a distinct contribution to the quality of the dissertation. This is especially noteworthy given the diverse interests of the committee members. The CPA firm that participated in the study must remain anonymous. However the complete cooperation of these individuals facilitated and improved the study.

Finally, this dissertation is dedicated to my wife, Cheryl. Her moral support and clerical skill reduced my anxiety and improved the presentation of the many tables contained in the dissertation.
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Chapter 1
INTRODUCTION

The range of accounting research has expanded significantly in the past few years. A recent review of accounting research in the 1970's (Dopuch and Revsine, 1973) included behavioral accounting research (BAR) as a separate category. Though the relationship between accounting and the behavioral sciences has long been recognized (Devine, 1962; Stedry, 1960), it has only recently risen to a position of prominence. According to Hofstedt (1975), approximately twenty-five percent of the total pages published in three major accounting journals in 1975 were devoted to BAR, while approximately ten percent were devoted to BAR in 1964.

BAR can be divided into many sub-areas. Major trends and sub-areas can be inferred from the American Accounting Association (1970), Burns (1972), Hofstedt (1975), Livingstone (1975) and Studies on Human Information Processing in Accounting (1976). Sorensen (1970) classified the behavioral problems of interest to accounting researchers into two broad categories: (1) the behavioral problems of internal and external users of accounting information and (2) the behavioral problems of accountants and accounting organizations. This study (as outlined later in the chapter) falls into the second category.

The impetus for examining accountants and accounting organizations can be traced to several factors. First, Certified
Public Accountants (CPAs) and firms of CPAs have gained national attention. In a recent article Minard and McGlynn (1977) noted the tremendous growth in the business of CPA firms and described the work of CPAs as "The U. S.' Newest Glamour Job." The attention given CPA firms has not all been favorable. The Subcommittee on Reports, Accounting, and Management of the United States Senate headed by Senator Lee Metcalf (1977) has criticized the influence major CPA firms have on the establishment of accounting principles. That report also examined the independence of CPA firms and their profitability. The report suggested stronger congressional oversight of accounting practice and comprehensive information on the activities and financial position of major CPA firms.

The second factor motivating the study of accountants and accounting organizations is the increased emphasis on management accounting functions. Harkins (1969, p. 32) states that: "the corporate controller has emerged over the past few years from relative obscurity to a position of considerable importance and influence. The emphasis of his job has changed from collecting and recording data to making better information available for running and controlling the business." Livingstone and Sathe (1976, p. 25) demonstrate the importance of the accounting function in terms of expenditures by the controller's department in two firms: "$20 million a year for a diversified chemical company with sales of $375 million; $12 million a year for an integrated textile manufacturer with sales of $200 million."
Finally, the increased behavioral sophistication of academic accountants has increased the output of BAR. While there is no hard evidence to support this last point, other authors have indicated the importance of this factor (Hofstedt, 1975; Watson, 1975).

Research Examining Accountants and Accounting Organizations

Most of the BAR research concerned with accountants and accounting organizations can be classified into four sub-areas: (1) studies examining accounting organizations (Baumler and Watson, 1976; Lengerman, 1971; Livingstone and Sathe, 1976; Marshall, 1968; Sorensen, 1967; Watson, 1975), (2) studies examining the personality of accountants (DeCoster and Rhode, 1971), (3) studies examining the job satisfaction and turnover of accountants (Dillard and Copeland, 1976; Rhode et al., 1976; Ross and Bomeli, 1971; Sorensen, 1967; Strawser, et al., 1969), and (4) studies examining the job performance of accountants (Ferris, 1977; Maher et al., 1976; Ross and Bomeli, 1967; Todd et al., 1974).

Sorensen (1967) identified the organizational disagreement resulting from professionally oriented CPAs working in large bureaucratic CPA firms. He related this disagreement to job satisfaction and turnover. Watson (1975) noted that the conflict between professional and bureaucratic orientations is not constant across functional areas in CPA firms. According to Watson, the mechanistic environment faced by auditors contributes to the conflict between professional and bureaucratic
orientations. However, the organismic environment faced by management services personnel is compatible with a professional orientation and, thus, conflict between a professional and bureaucratic orientation is minimized in this functional area.

Strawser, et al., (1969) used Maslow's (1954) need hierarchy to study the need satisfaction of CPAs in large and small firms. The findings indicated that the need for self-actualization is better satisfied in large firms while small firms better satisfy the need for autonomy. These differences were noted for firm partners. However, no differences were found for managers and supervisors in large and small firms. Ross and Bomeli (1971) criticized the Strawser et al., (1969) study. Though admitting that satisfaction is an important variable, they stressed the importance of predicting performance. As they point out, the linkage between Maslow's theory and job performance has not been empirically demonstrated. As an alternative to Maslow's theory, they suggested the use of expectancy theory (Vroom, 1964). Based upon an examination of this theory, they conclude that:

"Finally, rewards should be as closely related to performance as possible. An interesting experiment would be to study whether this actually occurs in public accounting. In fact, in depth research into the entire area of pay and other extrinsic and intrinsic rewards as it relates to satisfaction and motivation in accounting is urgently needed." (p.388).

Maher et al., (1976) and Ferris (1977) have both used expectancy

1The similarity between the research suggested by Ross and Bomeli (1971) and this study will become apparent in the next section.
type models to predict the performance of accountants in CPA firms. Maher et al., (1976) developed a fairly complex model based upon expectancy theory variables. However, as demonstrated later in this study, they did not examine the interaction of the model variables; interactions strongly suggested by expectancy theory. Their results provided little support for their model.

Ferris (1977) examined several expectancy models all of which have been previously examined in the psychology literature (Porter and Lawler, 1968; Lawler, 1971). The expectancy models were not significant predictors of job performance. However, recent reviews of expectancy research (Mitchell, 1974; Heneman and Schwab, 1972; Wahba and House, 1972) have suggested that meaningful predictions of performance require the use of more complex formulations of expectancy models.

**Overview of the Study**

This study also examines the job behavior and performance of CPAs. Specifically, it examines the relationship between perceptions of the performance evaluation process held by CPAs working as auditors and their job behavior and performance. Thus, it differs from previous efforts in that the study is grounded in the context of the performance evaluation process.
The performance of CPAs is rated on several dimensions. A typical set of dimensions used by a CPA firm might include: understanding accounting principles, planning audit work, promoting services to clients, revising audit programs and training assistants. These dimensions are also referred to as components or multiple criteria of performance. The ratings that an individual CPA receives on each dimension or component are used by firm partners in arriving at an overall evaluation of each CPA's performance. These overall evaluations determine salary increases and promotions.

In the psychological literature it is contended that evaluation on a given dimension makes the dimension a path to rewards (Cummings and Schwab, 1973; Nash and Carroll, 1975). That is, it provides a link between effort directed toward effective performance on the dimension and organizational rewards (e.g. salary increases and promotions). If individuals perceive that their performance on a dimension is properly evaluated and that the dimension is considered important to performance evaluators, they will utilize the path by directing their effort toward effective performance on the dimension.

Consider the following quotations:

"The use of multiple criteria assumes that the individual

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These and other dimensions are considered in more detail in Chapters II and III.
will commit his or the organizations efforts, attention and resources in greater measure to those activities which promise the greatest improvement in over-all performance." (Ridgway, 1956, p. 245).

"For the over-all (performance evaluation) system to be effective, employees must feel that their performance is adequately measured." (Cummings and Schwab, 1973, p.42).

"Perceptions by employees that a particular component is not considered important by compensation decision makers or is not being accurately measured may be expected to lead to a diminution of effort and accomplishment for that component." (Nash and Carroll, 1975, p. 155).

If these assertions are true, CPAs should direct much of their time toward planning audit work if (1) they believe that their performance with respect to planning is evaluated fairly, (2) they believe that effective performance on the planning dimension is important to their superiors and (3) they believe that their superiors will reward effective performance. On the contrary, if these beliefs are not held, CPAs should not be expected to direct very much time toward the planning of audit work. Similar conclusions could be drawn for the other dimensions of performance.

Performance evaluation can be a potent means of directing the effort of CPAs toward dimensions of the audit task which are most important. It can also be a potent means of misdirecting effort.3 Suppose the evaluators of performance stressed only the audit planning dimension. Quite possibly a subordinate would direct effort toward this dimension and not

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3See Hopwood (1973) and Ridgway (1956) for several examples of the detrimental affects of performance evaluation.
toward other important dimensions such as understanding accounting principles or reviewing work of assistants. As Ridgway (1956) points out:

"There must exist a theoretical condition under which an additional unit of effort or resources would yield equally desirable results in over-all performance, whether applied to production, quality, research, safety, public relations, or any of the other suggested areas." (p. 245).

This is the condition which Drucker (1954) refers to as "balanced stress on objectives."

Generally, authors dealing with performance evaluation cite the research in expectancy theory (Vroom, 1964) as support for their propositions. Essentially, expectancy theory predicts that an individual will be motivated to work hard if he expects working hard to lead to valued outcomes. But, expectancy theory does not specifically deal with perceptions of the importance of evaluation dimensions or perceptions of evaluation fairness. Also, expectancy theory is generally used to predict job effort or performance in general and not effort and performance with respect to dimensions of a job. Dornbush and Scott (1975) empirically tested a number of propositions regarding perceptions of the evaluation process which though integrated conceptually were not tested as integrated propositions.

In this study a model of the evaluation process will be developed which will incorporate the perceptual assertions referred to above as independent variables. Other independent variables implied by expectancy theory research will also be incorporated in the model. It will be used to predict the
amount of time CPAs direct toward evaluation dimensions and their performance on the dimensions. Besides constructing and testing a model of the evaluation process, the study will examine the extent to which perceptions of the evaluation environment reflect actual relationships and the congruence between the amount of effort CPAs direct toward each performance dimension and the amount of effort firm partners feel should be directed toward each performance dimension.

**Expected Contribution of the Study**

As noted above, the primary purpose of this study is to examine the effect of the evaluation process on the behavior and performance of CPAs. This will be accomplished by developing and testing a model which predicts the amount of effort that CPAs devote to various aspects of their job. The model developed is general in that by changing the measures of the variables (rather than the variables themselves) it could be applied in the context of other organizations. Rather than being a limitation of the analysis, this aspect of the study is a contribution to the psychological literature on performance evaluation and motivation. Consequently, this study will satisfy the "acid test" of good behavioral research in accounting established by the American Accounting Association Committee on the Relationship of Behavioral Science and Accounting (1974). Commenting on the changing emphasis in behavioral research in accounting, they state:
"Perhaps the best way to view such a shift is to view behavioral accounting research as behavioral research which happens to be published in an accounting journal: the implication is that such research could as well be published in an applied behavioral journal." (p. 130).

This study makes a more specific contribution to the accounting literature because the measures of the variables are uniquely applicable in a CPA firm setting. Therefore, the information obtained in this study will be useful in designing and modifying performance evaluation systems in CPA firms. Also, the study will provide information on the congruence between the amount of time CPAs direct toward each performance dimension and the amount of time firm partners feel should be directed toward each dimension. This assessment will provide some information on the current ability of CPA firms to direct effort.

This study will also provide information which is relevant for external users of accounting information. Lawler and Rhode (1976, p. 111) have indicated that "To understand the behavioral impact of information and control systems, it is important that we understand the attitudes and behavior of the individuals who design, maintain, analyze and perpetuate these systems in organizations." In understanding how a control system actually works, it is crucial to understand the behavior of the people who influence the information and control system. CPAs have a tremendous impact on the analysis and design of financial reporting systems; one type of information and control system. Working as an auditor, a
CPA appraises the financial reporting system and the reports generated by that system. When the financial reporting system is considered as a control system, the CPA is operating as a second level control system (see figure 1).

Figure 1.

CPA FIRM AS A SECOND LEVEL CONTROL SYSTEM
In answering the question "how well is the financial reporting system operating?" it is necessary to answer the question "how well is the CPA control system operating?" This latter question can only be answered by examining the behavior of CPAs. Knowing the most advanced auditing techniques, knowing how to properly plan an audit, knowing how to properly supervise audit assistants will not prove useful if the CPA is not motivated to engage in behaviors which will put his knowledge to good use. This study provides information regarding the motivation of CPAs to engage in important job behaviors and, therefore, provides external decision makers with information regarding the adequacy of the second level control system.

**Organization of the Study**

The next chapter reviews the literature on performance evaluation and describes the evaluation process in CPA firms. Chapter III reviews the literature in psychology and accounting relating to job behavior and performance. The literature is used to develop an evaluation model of directed job effort. Research hypotheses relating to the model and its components are also presented. A survey field study methodology for testing the hypotheses is discussed in Chapter IV. Chapter V presents the results of the study and Chapter VI summarizes the work and discusses the implications of the findings.
Chapter II
PERFORMANCE EVALUATION: LITERATURE AND CPA FIRM PRACTICE

This chapter reviews the literature on performance evaluation and describes the evaluation process in CPA firms. In this way, important aspects of the evaluation process are identified. These aspects of the evaluation process will be used to identify the critical variables of the evaluation model developed in the next chapter.

Purpose of Performance Evaluation

Performance evaluation is thought to serve two purposes (Cummings and Schwab, 1973). The first purpose relates to decision making: performance evaluations are used to make administrative decisions concerning salary increases, promotions and transfers. The second purpose relates to the development of staff members: evaluations identify a staff member's strengths and weaknesses so that the subordinate can identify areas which need improvement.

These purposes are inseparable. They are both related to the process of directing subordinate behavior. Basically, the decision making process links actions and rewards. A subordinate is not likely to direct effort toward activities which are not related to the reward system. Merely pointing out a subordinate's strengths and weaknesses (the developmental aspect of performance evaluation) without relating
these to the reward system (the decision making aspect of performance evaluation) may not be a sufficient means of changing subordinate behavior.

Dimensions of Effective Performance

In many organizations (including CPA firms) performance is evaluated on several different categories or dimensions. One way to determine the dimensions would be to examine the types of items which performance evaluators consider important. This approach is obviously not normative but it is a useful starting point. Seashore and Yuchtmen (1967) factor analyzed a set of performance indicators of 75 insurance sales agencies over a ten year period. Their analysis yielded ten factors. These factors were interpreted as indicative of "the ability of an organization to exploit its environment in the acquisition of scarce and valued resources to sustain its functioning." (p. 393).

Mahoney (1967) had managers rate organizational sub-units over 114 variables indicative of effectiveness. Factor analysis of the 114 items reduced the set to 24 performance dimensions. A regression analysis of the overall judgments and the 24 dimensions could account for 58 percent of the variance in overall judgments. A more surprising result was that only seven of the dimensions accounted for 56 percent of the variance in overall judgments.
Both the study by Seashore and Yuchtman (1967) and the study by Mahoney (1967) were concerned with organizational dimensions of effectiveness while this study is obviously concerned with individual dimensions of effectiveness. This difference is more apparent than real. Many measures of effectiveness of an organization would be applicable to the head of the organization if that person is held responsible for the performance of the organization. Also, in the Mahoney study, some of the sub-units were quite small and the relevance of the sub-unit dimensions for individuals becomes apparent as the number of individuals in the sub-unit approaches one.

Another method of defining the dimensions of effective performance would be to conduct a job analysis. Essentially, this involves a careful analysis of job related behaviors (Howell, 1976; Prien and Ronan, 1971). Roach (1956) developed a job behavior checklist based upon 390 statements of supervisory behavior. He used factor analysis to determine the major categories or dimensions. A relatively new approach to determining the dimensions of performance involves determining the critical factors of a job through discussions with superiors and subordinates and by observing job behavior (Kirchner and Dunnette, 1957). The discussions are used to generate lists of unusually good or poor job behavior. The technique is novel in that it strives for general agreement among groups of superiors on the classification of the behaviors into dimensions (Campbell et al., 1970).
Once the dimensions of performance are established, a subset is usually selected for evaluation purposes. Howell (1976) states that:

"Were it feasible to do so, we could establish standards for every aspect of every job and judge the individual according to whether he met, fell short of, or exceeded these standards. Such an approach, of course, would be impractical and unnecessarily detailed." (p. 120).

According to Campbell et al. (1970) a subset should be neither deficient nor excessive. A subset would be deficient if it included only a few of the behavioral elements making up a job. It would be excessive if it included aspects of the job not under the direct control of the subordinate being evaluated.

Measures of performance along the dimensions of effectiveness are affected by three sources of error. First of all, only a limited sample of behaviors are observed and an evaluator has only an imperfect knowledge of performance. Also, ratings on the dimensions are characterized by central tendency (score items for all individuals about the same) and halo error (rate performance on many items based upon a general feeling about the subordinate's performance). Finally, individual characteristics of the evaluator enter

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4See Campbell et al. (1970) for a more detailed discussion of sources of error in performance evaluation.
into the scores and differing expectations of evaluators are likely to result in different ratings on the dimensions (Campbell et al., 1970).

Solutions to these problems have been suggested by many authors. Lawler (1967) suggested that evaluations should be obtained from several different evaluators (e.g. superior, peer and self-evaluations). This provides some estimate of error due to observer characteristics. Other authors have suggested various rating scales to reduce central tendency and halo error (Bass, 1956). The use of rating scales which are related to specific behaviors have also been suggested as ways to minimize errors (Kirchner and Dunnette, 1957). However, Schwab et al. (1975) indicated that a review of research provides little evidence that behaviorally anchored rating scales minimize error in evaluation scores.

**Overall Evaluations**

Once a subordinate has been rated on the various evaluation dimensions, his superiors typically combine the ratings into a composite or overall evaluation. This is not to say that the separate ratings on the various dimensions are not used to identify strengths and weaknesses. However, when salary increases and promotions are made, the supervisor must decide what overall contribution the subordinate has made (Howell, 1976; Zedeck and Kafry, 1977). The superior's
overall evaluation reflects an implicit weighting of the subordinate's performance on the evaluation dimensions. If the superior feels that a particular dimension is not important, he gives it little weight in arriving at the composite or overall evaluation. He gives greater weight to more important dimensions. He could use an explicit weighting but that is uncommon in arriving at overall evaluations of individuals in professional organizations.

The superior must give careful consideration to the weight attached to each dimension. If he highly weighs only a few dimensions, the other dimensions may not be given attention and effort, (Nash and Carroll, 1975; Ridgway, 1956).

The Evaluation Process in CPA Firms

Since the evaluation process followed by various CPA firms are unique, they differ somewhat from the one described in this section. However, the critical features of the evaluation process described here would hold true in any large CPA firm.

Most CPA firms have four organizational levels. The titles assigned to positions vary among firms. In this study, the term senior accountant is applied to an individual who has been with the firm for approximately three to six years. The duties of a senior accountant include day to day supervision of the audit, development of audit programs, evaluation of internal control and performing various audit
Assistant accountants are new firm members (less than three years with the firm) and are under the direct supervision of the senior accountant. The term manager is applied to an individual who has been with the firm for approximately six to twelve years. The duties of a manager primarily involve the supervision of a large number of audits. The manager does not supervise audits on a day to day basis but does conduct periodic reviews and holds discussions with client executives. After ten to fourteen years with a firm, a staff member may become a partner. A partner assumes final responsibility for a large number of audits. The duties of a partner include the general review of audit materials and the development of client relationships.  

In this study, the performance evaluation process is examined from the perspective of senior accountants. Throughout the course of an audit, the performance of the senior accountant is evaluated by the manager assigned to the audit client. During this time, the manager will occasionally bring to the senior's attention areas needing improvement. This is one of the unique aspects of CPA firms. As Burns and Coffman (1977, p. 16) note: "Public accounting firms assess their professional staff on an almost continuous basis."

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5 For a more detailed treatment of these positions, see Burns and Coffman (1977).

6 Justification for selecting senior accountants is provided in Chapter IV.
This continuous assessment is in contrast to the infrequent feedback received by CPAs (Lawler and Rhode, 1976). Feedback occurs at the end of the audit when the manager fills out a formal evaluation form. This form includes many items over which performance is rated (e.g. knowledge of audit procedures, ability to direct work of assistants, appearance, punctuality, cooperation with client). These items define the dimensions of evaluated performance. The manager reviews the evaluation form with the senior accountant. This gives the senior accountant an opportunity to compare his perceptions of his performance on the evaluation items with the scores he has received. Due to error in the scores (described in the previous section), the possibility exists that the senior's perceptions of appropriate scores on the evaluation items differ from the scores assigned by the manager. Figure 2 indicates the potential discrepancy between actual performance, perceived performance from the senior's point of view and evaluated performance by separating these components.

Since a senior accountant at a large firm generally works on six to twelve audits each year, the senior will be evaluated by a number of managers annually. The evaluation forms from each of these audits are placed in the senior's personnel file. The partners meet once or twice a year to make promotion and salary decisions concerning senior accountants. (In some firms, managers also participate in these
OVERALL EVALUATION

SENIOR'S ACTUAL PERFORMANCE ON DIMENSION 1

SENIOR'S ACTUAL PERFORMANCE ON DIMENSION 2

... 

SENIOR'S ACTUAL PERFORMANCE ON DIMENSION N

SENIOR'S PERCEIVED PERFORMANCE ON DIMENSION 1

SENIOR'S EVALUATED PERFORMANCE ON DIMENSION 1

SENIOR'S PERCEIVED PERFORMANCE ON DIMENSION 2

SENIOR'S EVALUATED PERFORMANCE ON DIMENSION 2

... 

SENIOR'S PERCEIVED PERFORMANCE ON DIMENSION N

SENIOR'S EVALUATED PERFORMANCE ON DIMENSION N

OVERALL EVALUATION

REWARDS

STEPS IN THE EVALUATION PROCESS

Figure 2.
meetings). Each partner examines copies of the evaluation forms in the senior's personnel file and an open discussion of the senior's performance takes place. At this time the partners make an overall evaluation of the performance of each senior. Typically, the group of partners reach a general agreement regarding the appropriate overall evaluation for each senior. However, in those cases where there is substantial disagreement among the partners, the partner in charge of the office will play a deciding role. This process involves implicitly weighing the scores on each evaluation item. This is indicated by the linkage in figure 2 between evaluated performance on an evaluation dimension and overall evaluations. The overall evaluation is used as a basis for salary decisions and deciding the prospect of promoting the senior to manager. After the overall evaluation has been reached, a partner (or manager) assigned primary responsibility for personnel administration, meets with each senior to discuss his performance. The partner and the senior review the evaluation reports for the year and the partner indicates in general terms (i.e. unsatisfactory, satisfactory, outstanding) the overall evaluation of the senior. Since he knows his scores on the evaluation items and his overall evaluation, the senior can deduce the implicit weighting of the evaluation items.
Relevant Aspects of the Evaluation Process

The discussion in this chapter has delineated several important aspects of the evaluation process:

(1) The items used by evaluators of performance can be used to identify performance dimensions.

(2) A senior accountant's perceptions of appropriate scores on the evaluation items can differ from the ratings assigned by audit managers.

(3) The senior has a perception (but not necessarily an accurate one) of each evaluation item's contribution to his overall evaluation.

These aspects of the evaluation process will be incorporated in the evaluation model developed in the next chapter.

Research on Performance Evaluation in CPA Firms

The literature specifically dealing with performance evaluation in CPA firms generally approaches the topic without the benefit of theoretical development or empirical analysis. The articles agree that performance evaluation systems are useful, that the evaluation should be discussed with the staff member at the end of each audit engagement and that technical abilities and personality variables should be assessed (Borenzweig, 1971; Rea, 1970; Wells, 1970; Zarine, 1966). At a more innovative level, Wells (1970) has suggested that staff members set their own goals and Block (1974) has suggested that subordinates evaluate superiors.
Only a few studies have attempted to investigate the evaluation process using an empirical methodology. A study by Maher, Ramanathan and Peterson (1976) investigated how perceptions of firm goals and performance evaluation criteria affected the performance ratings of CPA firm members. In order to investigate this question, they developed the following model:

\[ P = f (OC^a, OC^c, IC^a, IC^c, V, E, I, A) \]

where \( P \) = the performance of individuals in achieving firm goals.

\( OC^a \) = the accuracy with which organizational performance criteria are perceived by individuals.

\( OC^c \) = the congruence of perceived organizational performance criteria and those desired by individuals.

\( IC^a \) = the accuracy with which individual performance criteria are perceived by individuals.

\( IC^c \) = the congruence of perceived individual performance criteria and those desired by individuals.

\( V \) = valence of job performance outcomes.

\( I \) = relationship between job performance and desired outcomes.

\( E \) = relationship between effort and job performance.

\( A \) = ability to perform, including such factors as intelligence, manual skills and personality traits.

Based upon discussions with CPA firm partners, ten firm goals were identified. These goals were also interpreted as performance evaluation dimensions. These goals were:

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\[ 7 \]This study is further elaborated in Maher (1975) and Ramanathan, Peterson and Maher (1976).
(1) Quantity of technical work as measured in billable hours.

(2) Quality of technical work.

(3) Personal professional development.

(4) Quality of supervision of others.

(5) Quality of staff training and development.

(6) Relationships with other members of the firm including communication and work cooperation.

(7) Relationships with present clients.

(8) Selling additional services to present clients.

(9) Developing new clients.

(10) Public relations.

Subjects in the study included partners, managers, and junior staff members in eight CPA firms. Using a questionnaire, each subject's perception of the importance of the ten items as firm goals and as evaluation criteria was obtained. These perceptions were compared to measures of importance obtained from managing partners in the CPA firms to obtain accuracy measures. Congruency measures were obtained by comparing individual perceptions of importance with the importance the subjects desired to attach to the ten items. The expectancy, instrumentality and valence measures were similar to measures commonly used in expectancy studies. Ability was measured by having each subject rate his ability in comparison to his peers on a seven-point scale.

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8Expectancy studies will be discussed in detail in Chapter III. See Mitchell (1974) for measures of variables.
Performance was measured in two ways. First managing partners classified each accountant as a "high performer" or "not a high performer." Under another classification based upon the assumption that managers and partners are of necessity "high performers", managers and partners were classified as "high performers" and other firm members were classified as "not high performers."

The central hypothesis of the study was tested by comparing the mean scores on each independent variable for the "high performer" group and the "not high performer" group. For example, since high performers would have more accurate perceptions of the importance of individual evaluation criteria (ICa), the mean accuracy scores should be lower for "high performers" than for "not high performers." These mean differences were tested for each of the ten items considered as firm goals or as evaluation criteria. The other variables in the model were tested in a similar manner. The results of the study are, however, very difficult to interpret. In many cases the results obtained were different for the two methods of classifying individuals according to performance. Also in every test, the measures were different for only some of the ten evaluation items. Given ten criteria and two methods of classification there are twenty mean comparisons. For the variable ICa, eight of the comparisons were significant. Any conclusion as to the importance of the ICa variable would be very subjective
given these ambiguous results. Several other problems also make interpretation difficult. First, the methodology tests each model component separately. Expectancy theory (Vroom, 1964) predicts an interaction between the variables V, E, and I. Secondly, the testing of mean differences on each of the ten components of performance seems inappropriate when the classification of subjects is in terms of overall performance. Subjects would be more sensibly classified with respect to their performance on each of the ten criteria. Or, alternatively, the scores should be aggregated across evaluation criteria to predict overall performance. Even when the authors find significant mean differences, the differences, though statistically significant may not be practically important. Significance to an extent is driven by a large sample size (Hays, 1973).

Todd, Thompson and Dalton (1974) examined the relationships between CPAs perceptions of the management control process and performance. This study is of interest because one aspect of management control is performance evaluation. The authors examined perceptions with respect to: (1) clarity of control system, (2) individual control and influence and (3) the relationship between performance and rewards. Unfortunately, the authors did not explain how these perceptions were measured or exactly what types of items would constitute each variable. The reported findings indicate that performance is related to perceptions one and three above.
In addition to the two studies discussed above, Baumler and Watson (1976) have conducted the only other empirical study of performance evaluation in CPA firms. Essentially, they predicted that the cognitive evaluation process would differ across organizational levels (partner, manager and senior) and across organizational specialties (auditing, tax and management services). This hypothesis was confirmed but although there were differences, a simple linear model provided an adequate representation of the cognitive evaluation strategy employed by most CPAs.  

9 Although it is not reported in their study, the authors indicated (personal communication) that the average R for linear evaluation models was .92.
Chapter III
EVALUATION MODEL OF DIRECTED JOB EFFORT

One criticism of research in accounting (Dyckman, Gibbons and Swieringa, 1976) as well as in the behavioral sciences (Miner and Dachler, 1973) involves the lack of systematic conceptualization. Miner and Dachler note that:

"In order to better deal with both the problem of hypothetical, unobservable constructs as well as the problem of causal explanations of organizational behavior, explicit and articulated conceptualizations of the constructs of interest, their properties and interrelationships is a prerequisite to research and measurement." (p.380).

Without a theoretical framework for analysis, causal explanations of results are not possible. Much of the performance evaluation literature lacks theoretical justification. As noted in the previous chapter, only a few studies have attempted to investigate the evaluation process in CPA firms empirically (Maher et al., 1976; Thompson and Dalton, 1974; Baumler and Watson, 1976). Likewise, in psychology, assertions regarding the affect of performance evaluation on job behavior are often unsupported by careful conceptualization or empirical research. As chapter 1 pointed out, many of the assertions regarding the performance evaluation process are justified in terms of an expectancy theory of motivation. Since expectancy theory is a theory of motivation and

\[\text{See Chapter 1 for examples of these assertions.}\]
29.
Performance evaluation is thought to motivate individuals, the theory is relevant to the study of the evaluation process. However, previous researchers have not specifically related elements of the evaluation process to the components of an expectancy theory of motivation. This study will use elements of the evaluation process as independent variables in a model based upon expectancy theory. The remainder of this chapter will examine literature dealing with motivation in order to model the effect of evaluation on job behavior. The model will serve as a basis for deriving research hypotheses.

Motivation, Behavior and Performance

The terms motivation, behavior and performance are often used as if they were synonymous. Mitchell (1974) points out that many studies using an expectancy theory of motivation have used performance as a criterion variable even though the theory relates to motivation. In this study, motivation is defined as an inclination or personal force toward a behavior. This definition is identical to Vroom's concept of force (1964) and Atkinson's concept of arousal motivation (1958). Behavior is defined as the action of an individual. Behavior can be either voluntary or involuntary (Vroom, 1965). Behavior which follows from a person's inclination (motivated behavior) is voluntary. Reflex actions are involuntary. Since the term performance denotes the outcome of voluntary behavior, motivation leads to an action (behavior) which in turn leads to an outcome (performance).
Historically, psychologists have tried to relate performance to either ability or motivation (Vroom, 1965). Explanations of performance in terms of ability lead to job simplification strategies to make jobs congruent with worker abilities. The systematic measurement of abilities as an aid in job placement also followed from this conception of performance. The studies at the Hawthorne plant of Western Electric Co. (Roethlisberger and Dickson, 1939) lead to explanations of performance in terms of motivation. Most current concepts of performance indicate that performance is a function of ability and motivation (Gagner and Fleishman, 1959; Maier, 1955). Vroom (1965) and other authors have indicated that performance is a function of both ability and effort where effort is a behavior resulting from a person's motivated state. The relationship is usually expressed as:

\[ P = f(A \times E) \]

where \( P \) = Performance
\( A \) = Ability
\( E \) = Effort

Mitchell (1974) has noted the difficulty researchers have in defining effort. Time spent, energy expended, or activity level are possible measures of effort. The amount of time spent on an activity can be supported as an objective measure of effort. In this study, the terms time and effort will be
used interchangeably. Based on the relationship between performance and effort, an individual would be expected to achieve a higher level of performance by directing more time toward a performance dimension.

**Alternative Theories of Motivation**

Theories of motivation can be classified as process theories or content theories (Campbell et al., 1970; Miner and Dachler, 1973). According to Campbell, et al.:

"The former try to explain and describe the process of how behavior is energized, how it is directed, how it is sustained, and how it is stopped. They first try to define the major classes of variables that are important for explaining motivated behavior. For example, a theory might talk about rewards, needs and incentives as three general classes of variables that are important for understanding motivation. Such theories then attempt to specify how the variables interact and influence one another to produce certain kinds of behavior. (...) By contrast, content theories are more concerned with the specific identity of what it is within an individual or his environment that energizes and sustains behavior. That is, what specific things motivate people? For example, we might theorize that individuals have three fundamental needs: food, sex and security. (...) The content theories are not centrally concerned with specifying the precise form of the interactions between variables." (p. 341).

Two major process theories are equity theory (Adams, 1963) and expectancy theory (Vroom, 1964). Equity theory deals primarily with compensation practices. The theory proposes that a person compares personal job inputs and outputs to the inputs and outputs of another individual. If the ratios of inputs to outputs are not equal, the person is motivated to reduce the discrepancy. A review of equity theory findings
is provided by Pritchard (1969). Commenting on this review, Miner and Dachler (1973, p. 387) note "Pritchard's presentation can only be considered a promising beginning in clarifying and articulating the still vague and relatively unsophisticated nature of equity theory as a theory of motivation or satisfaction."

Expectancy theory proposes that the motivation to perform an act is a function of an individual's expectation that the act will be followed by certain outcomes and the value of these outcomes to the individual. House and Wahba (1972, p. 127) state that "expectancy or instrumentality-valence theory is perhaps the most widely accepted theory of work and motivation among today's industrial and organizational psychologists." Ronen and Livingstone (1975) have suggested that expectancy theory is useful for analyzing behavioral problems in a budgeting setting. Dillard and Copeland (1976) have empirically tested an expectancy model in a CPA firm environment and found the model to have a great deal of explanatory power.

Two current content theories are need hierarchy theory (Maslow, 1954) and two-factor theory (Herzberg et al., 1957). Need hierarchy theory suggests that individuals are motivated to satisfy certain needs. These needs are in a hierarchy such that higher level needs only motivate behavior after lower level needs have been satisfied. Miner and Dachler (1973, p. 390) point out that "At this point in time the most appropriate conclusion appears to be either that need hierarchy
is not supported by research evidence or that it has not been formulated with sufficient precision to permit adequate testing." However, some recent success in testing this theory has been provided by Mitchell and Moudgill, (1976) and by Wansus and Zwany (1977).

Two-factor theory is primarily a theory of job satisfaction although it is often listed with theories of motivation (Campbell, et al., 1970). The relationship between job satisfaction and motivation is not clear, and the conditions which produce a high level of satisfaction are not necessarily the same as those which produce a high level of performance (Vroom, 1965). Basically, two-factor theory hypothesizes two classes of variables: hygiene factors and motivators. Hygiene factors prevent job dissatisfaction but do not increase job satisfaction. Motivators can increase job satisfaction.

Earlier, the need to conduct behavioral research within the context of an explicit theory was stressed. The framework for analyzing the performance evaluation process should relate to one of the alternative theories of motivation. Expectancy theory appears to be the logical choice for three reasons. First of all, the theory has wide acceptance (House and Wahba, 1972). Second, the theory has been suggested as a valuable framework for analyzing accounting problems (Ronen and Livingstone, 1975) and has been validated in a CPA firm setting (Dillard and Copeland, 1976).
Third, the theory allows for both the specification of important variables and the process by which they influence behavior. According to Campbell et al. (1970, p. 341) "motivational theory is useful for making predictions only to the extent that it specifies the identity of the important variables and the process by which they influence behavior." These twin features are present in expectancy theory.

**Expectancy Type Models**

Although it is common to speak of expectancy theory as if it were a single theory of motivation, there are, in fact, several formulations of the theory. Vroom (1964), Galbraith and Cummings (1967), Campbell, et al., (1970), House (1971) and Turney (1974) have all presented distinct expectancy type models. The common feature of all of the theories is the idea that individuals have expectations as to the likelihood of outcomes resulting from their actions and have affective preferences (either positive, negative or neutral) toward the outcomes. According to the theories, individuals are motivated to perform actions which are likely to result in valued outcomes.

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11 The reader interested in an exhaustive review of expectancy theory models and empirical tests is referred to the reviews by Mitchell and Biglan (1971), Heneman and Schwab (1972), House and Wahba (1972) and Mitchell (1974).
Early versions of expectancy theory were formulated by Atkinson (1958), Georgopoulus, Mahoney and Jones (1957), Lewin (1938), and Tolman (1932). However, Vroom (1964) is generally credited with the first explicit formulation of an expectancy theory applied to organizational behavior (Mitchell, 1974). Three concepts form the basis of Vroom's theory: (1) valence, (2) instrumentality and (3) expectancy.

Valence is the term used to describe an individual's affective preference for an outcome. Although Lewin (1938) and Tolman (1959) used the term valence to refer to the affective orientation toward an outcome, Vroom (1964) stated that the concept is identical to other terms such as incentive (Atkinson, 1958), attitude (Peak, 1955), and expected utility (Davidson, Suppes and Siegel, 1957). However, it is distinguished from terms such as motive which refers to the preference for a class of outcomes. The valence of an outcome may be either positive, negative or neutral. An outcome, x, has a positive valence to an individual when x is preferred to not x. An outcome, x, has a negative valence to an individual when not x is preferred to x. An outcome, x, has a neutral valence when an individual is indifferent between x and not x.

An outcome may have positive or negative valence even though it has no intrinsic properties which are satisfying or dissatisfying. This happens when the outcome is expected to lead to other outcomes which are positively or negatively valent. For example, an individual may desire a high
performance rating on his job not because he values the rating per se, but because he expects the rating to lead to a salary increase, promotion and respect from his supervisor. Generally, outcomes which are valued only because they lead to other outcomes are referred to as first level outcomes while the valued outcomes resulting from first level outcomes are referred to as second level outcomes.

Instrumentality, the expectation that the attainment of one outcome will lead to another outcome, is a cognitive concept. The actual relationship between two outcomes is not encompassed within this term. Only an individual's perception of the relationship is denoted by the concept of instrumentality. The relationship between valence and instrumentality is summarized in Vroom's (1964) Proposition 1.

"The valence of an outcome to a person is a monotonically increasing function of the algebraic sum of the products of the valences of all other outcomes and his conceptions of its instrumentality for the attainment of those outcomes." (p. 17)

In equation form this proposition is as follows:

\[ V_j = \sum_{k=1}^{n} (V_k I_{jk}) \]  \hspace{1cm} (2)

where \( V_j \) = the valence of outcome \( j \).

\( I_{jk} \) = the instrumentality of outcome \( j \) for the attainment of outcome \( k \). \((-1 < I_{jk} < 1)\).

In setting the range of the instrumentality measure as \((-1 < I_{jk} < 1)\) Vroom apparently conceptualized the instrumentality measure as a type of personal correlation. If the measure
is plus one, two outcomes are perceived as being positively associated. If the instrumentality measure is minus one, two outcomes are perceived as being negatively associated.

This model is referred to by Mitchell (1974) as the valence model. Obviously, it is quite general and could be used to predict the valence of any outcome. In practice, it has been used to predict job satisfaction, occupational preference or the valence of good performance (Mitchell, 1974).

The concept of expectancy is used to link actions and outcomes and refers to an individual's belief that an action will be followed by a certain outcome. Vroom (1964) states that this concept is identical to the term subjective probability used in the expected utility literature (Davidson, Suppes, and Siegel, 1957). More will be said about the similarity between subjective expected utility theory and expectancy theory later in the study.

The relationship between outcomes and actions is summarized in Vroom's (1964) Proposition 2:

"The force on a person to perform an act is a monotonically increasing function of the algebraic sum of the products of the valences of all outcomes and the strength of his expectancies that the act will be followed by the attainment of these outcomes." (p. 18).
In equation form, this proposition is as follows:

\[ F_i = \sum_{j=1}^{n} (E_{ij} V_j) \]  \hspace{1cm} (2)

where \( F_i \) = the force to perform act i.

\( E_{ij} \) = the strength of the expectancy that act i will be followed by outcome j.

\( V_j \) = the valence of outcome j.

This model is referred to Mitchell (1974) as the behavioral choice model. According to this model, an individual will choose from alternative actions the one with the highest positive or weakest negative force. This formulation is very similar to the suggestion in decision theory that individuals select the action with the highest subjective expected utility.

If \( V_j \) is considered to be a first level outcome which is not valued for itself but only because it leads to second level outcomes, an expanded choice model is derived as follows:

\[ F_i = f \left( E_{ij} \left( \sum_{k=1}^{n} I_{jk} V_k \right) \right) \] \hspace{1cm} (3)

Figure 3 presents the model for the case where there are two possible actions \((A_1, A_2)\), three first level outcomes \((O_1, O_2, O_3)\), three second level outcomes \((O'_1, O'_2, O'_3)\) and corresponding expectancy measures \((E_{ij})\) and instrumentality measures \((I_{jk})\). Even in the case where there are only two actions, three first level and three second level outcomes, applying the model would be a difficult task. A researcher
BEHAVIORAL CHOICE MODEL

Figure 3.
would have to measure the valence of three second level outcomes, nine instrumentality variables, and six expectancy variables. Because of this difficulty, only a few studies have empirically tested the behavioral choice model.

A study by Olivero (1973) utilized three behaviors (maximum, average, and minimum effort), two first level outcomes (good performance and poor performance), and twenty second level outcomes. Measures were combined according to a model similar to equation (3). The effort level with the largest calculated force was the predicted effort level for each subject. These effort levels were correlated across subjects with each subject's self-reported effort. A correlation of .28 was obtained which was significant at p < .01. However, other more simple models also had correlations of similar magnitude. One simple model similar to equation (4) (developed below) resulted in a correlation of .22.

Nebeker and Mitchell (1974) used the behavioral choice model to predict the extent to which managers engaged in eight behaviors: (1) criticizing subordinates' poor performance, (2) praising subordinates' good performance, (3) showing friendliness to subordinates, (4) explaining to subordinates what is expected of them, (5) supervising subordinates' ongoing activities, (6) instructing subordinates on how to do their job, (7) seeking subordinates' opinions on decisions that affect them, (8) treating subordinates as individuals. The study examined five levels of each
behavior and five first level outcomes. No second level outcomes were examined. Subjects' scores were combined according to equation (3) and the effort level with the highest calculated value was determined to be the predicted level of effort. The predicted levels were classified as high for level 5, medium for level 4 and low for levels 1, 2 or 3. Subordinate ratings of the manager's use of the behaviors were used as dependent variables in an analysis of variance design. The null hypothesis was that $u_1 = u_2 = u_3$ where $u_1$ equals the mean rating by the subordinates for managers classified as engaging in a high level of the behaviors, $u_2$ equals the mean rating by the subordinates for managers classified as engaging in a medium level of the behaviors and $u_3$ equals the mean rating by subordinates for managers classified as engaging in a low level of the behaviors. The null hypothesis was rejected at $p < .01$. However, post hoc comparisons of the means revealed that the means of both the medium and high levels were different from the mean of the low level but not significantly different from each other. Therefore, the model is only partially supported.

Instead of using the behavioral choice model outlined in equation (3), most researchers have used a modified form of this model as follows: 12

12For examples, see Lawler and Suttle (1973), Mitchell and Nebeker (1973), and Pritchard and Sanders (1973).
\[ W = E \left( \sum_{j=1}^{n} I_j V_j \right) \]  

\( W \) = the force to expend a high level of effort in the attainment of good performance.

\( E \) = the expectancy that a high level of effort will result in good performance.

\( I_j \) = the instrumentality of good performance for the jth second level outcome.

\( V_j \) = the valence of the jth second level outcome.

This model is referred to by Mitchell (1974) as the job effort model. In comparison to the behavioral choice model, the job effort model restricts itself to one action (a high level of effort), one expectancy (the expectancy that a high level of effort results in good performance), and one first level outcome (good performance). Since there is only one first level outcome, there is only one set of instrumentality measures (containing one measure for each of the n second level outcomes). Mitchell and Nebeker (1973) provide an example of the approach to testing the job effort model. In this study the authors were interested in using the job effort model to predict academic effort. Nine second level outcomes were identified (e.g., feeling of accomplishment, self-confidence and appreciation of ideas). The valence of each outcome was measured as the average score on two 7 point scales: one a rating of importance and the other a rating of how pleasant the outcome was to the subject. Expectancy was measured on a 7 point scale which asked each subject the degree to which he felt time spent on academic activities would lead to good grades. Instrumentality was measured
on a 7 point scale which asked each subject the degree to which obtaining good grades contributed to or detracted from each of the nine outcomes. The valence, expectancy and instrumentality terms were combined according to the job effort model discussed earlier. The calculated measures of effort were correlated across subjects with independent measures of effort. The independent measure was each subject's average number of hours spent on academic activities for the last academic quarter. A correlation coefficient of .23 was obtained which was significant at the .05 level. Other studies have obtained fairly similar results. For example, the correlation coefficient in a study by Lawler and Suttle (1973) was .39 while the correlation coefficient in a study by Pritchard and Sanders (1973) was .47.  

Additional Tests and Extensions of Expectancy Type Models

The empirical work in expectancy theory shows that although expectancy models account for a significant portion of the variance in dependent variables, substantial portions of variance remain unexplained. This had lead a number of authors to question (1) the use of dependent variables in expectancy research, (2) the explanatory power of variables included in expectancy models, (3) the mathematical form of expectancy models and (4) the explanatory power of variables not usually included in expectancy models.

13See Mitchell (1974) for a summary of tests of the job effort model.
Dependent Variables in Expectancy Research

In the empirical tests of expectancy models various measures have been used as dependent variables. For example, Pritchard and DeLeo (1973) used an objective measure of performance, Lawler (1968) used supervisor, peer and self measures of performance and Lawler and Porter (1967) used supervisor, peer and self measures of effort. Expectancy theory, as formulated by Vroom (1964) predicts the force toward a behavior which is usually taken to be an effort level. And, as previously argued, performance is the result of effort and ability. Without a measure of ability, an expectancy model should not be expected to effectively predict performance. Considering that effort is a difficult concept to measure, it could also be argued that self-reported effort should be more predictable from an expectancy model than peer or superior measures of effort. Several authors have tested the predictive power of expectancy models using alternative dependent variables. Lawler and Porter (1967) found that an expectancy model could predict self-reported effort better than supervisor reported effort or supervisor reported performance.

Galbraith and Cummings (1967), Gavin (1970) and Heneman and Schwab (1972) have found that a measure of ability did not improve expectancy theory model predictions of performance. The fact that ability has not been found to improve predictions could be an artifact of the methodology.
If the group of subjects studied by each author was fairly homogeneous with respect to ability, then testing the expectancy model by correlating model predictions of performance with self, peer, superior or objective measures of performance (the methodology employed) would limit the predictive power of ability.

Explanatory Power of Variables Included in Expectancy Models

Typically, an expectancy model includes valences, instrumentalities and expectancies. Several authors have investigated the relative usefulness of these variables in predicting effort and performance. If a variable was not a useful predictor, its inclusion in the model could attenuate the model's predictive power. The results of these studies are conflicting and difficult to interpret. Gavin (1970) and Lawler and Suttle (1973) found that valence contributes little to the prediction of effort. In contrast to these studies, Pritchard and Sanders (1973) found that valence was the best single predictor of effort. Taken together, these studies imply that the independent variables are not equally useful in predicting effort. However, as to which variables are most useful no conclusions can be drawn until a consistent pattern emerges from future research.

Mathematical Form of Expectancy Models

The form of the job effort model suggests a multiplicative combination of the valence (V), instrumentality (I), and expectancy (E) terms. While this combination is intuitively appealing it may or may not be representative of the
cognitive process of individuals. A logical alternative would be an additive combination of the dependent variables. Which of these two combinations is most appropriate is an empirical question. Galbraith and Cummings (1967) and Hackman and Porter (1968) have found empirical support for the interaction of expectancy theory variables. However, Gavin (1970) and Mitchell and Nebeker (1973) have found additive and multiplicative models to be equally useful predictors of effort. Pritchard and Sanders (1973) found a correlation of .36 between \((E+I+V)\) and effort while a correlation of .47 was obtained for \((E\cdot I\cdot V)\) and effort. However, neither of these combinations predicted effort as well as valence alone (.54). These conflicting results imply the need for additional research examining the mathematical form of expectancy models.

Additional Variables in Expectancy Models

The modest predictive power of expectancy theory models may also be due to a failure to include important explanatory variables. A number of authors have suggested that researchers consider additional variables related to motivation (Heneman and Schwab, 1972; Mitchell, 1972; Turney, 1974; and Wahba and House, 1972). For example, Mitchell and Nebeker (1973) examined attitudes toward effort, attitude towards performance, expectations of peers and expectations of superiors. In general they found that the predictive power of an expectancy model was improved by including these variables.
Several authors have attempted to include some measure of the intrinsic value of work activity. These authors postulated that individuals may be motivated by the fact that their work is rewarding in and of itself. Galbraith and Cummings (1967) defined the reward intrinsic to work behavior as ego-involvement. This variable was measured in terms of how often an employee thought about his job after the work shift was over. Their results failed to support their definition of intrinsic rewards. Mitchell and Albright (1972) made a distinction between intrinsic rewards which are not mediated by the organization (e.g. self-fulfillment and self-esteem) and extrinsic rewards which are mediated by the organization (e.g. salary increases and promotion). They formed separate expectancy equations for each set of outcomes and found intrinsic rewards were better predictors of effort than extrinsic rewards. Turney (1974) incorporated a separate variable which he labeled the intrinsic activity value (IAV). This variable measured the extent to which an individual enjoyed performing an activity for its own sake. In comparing the predictive power of IAV and E·V, Turney found that IAV was a much better predictor of job effort and performance. The strength of Turney's findings suggests that the inclusion of an IAV measure is important in future expectancy model studies.
Criticisms of the Assumptions and Measurements in Expectancy Research

Two additional explanations have been offered for the modest predictive power of expectancy models: (1) the assumptions of expectancy models do not hold and (2) the measures of expectancy model variables are inappropriate.

Behling and Starke (1973) have noted that subjective expected utility theory is founded on a set of postulates or assumptions which have not been supported by current research. They pointed out a direct correspondence between these postulates and necessary assumptions of the behavioral choice model. For example, subjective expected utility theory has the postulate of transitivity. This postulate requires that if an individual prefers outcome 1 to outcome 2 and prefers outcome 2 to outcome 3, he must also prefer outcome 1 to outcome 3. In a similar fashion the behavioral choice model requires that if the valence of outcome 1 is greater than the valence of outcome 2 and the valence of outcome 2 is greater than the valence of outcome 3, then the valence of outcome 1 must be greater than the valence of outcome 3. May (1954) has shown that this postulate is violated by many individuals. However, the fact that the assumptions of expectancy theory are violated by some individuals under some circumstances only indicates that the theory is not a perfect predictor of human behavior. This is not too surprising given the complexity of human behavior. The usefulness
of expectancy theory should not be judged solely on the validity of its assumptions but also on its ability to predict behavior and to provide insights into complex job behavior.

Typically, expectancy theory variables are measured by having subjects respond to questions on a Likert type scale. These responses are considered to be at best interval scale measurements (Kirlinger, 1964). Schmidt (1973) has indicated that in order to justify the multiplicative combination of expectancy theory variables they must be measured on a ratio scale. However, Hackman and Porter (1968, p. 421) state that "...such procedures are reasonable, as long as the scores are substantively meaningful on extramathematical grounds and so long as the scores do in fact relate to the criterion variables of interest." Schmidt's argument has been further criticized by Mitchell (1974). He noted that some of the transformations in Schmidt's analysis changed an originally positive score to a negative one and, therefore, seems unreasonable on "extramathematical grounds." Schmidt's criticism is also refuted by the empirical support for the multiplicative relationship found by Galbraith and Cummings (1967) and Hackman and Porter (1968). These authors hypothesized a multiplicative combination of expectancy theory variables. The fact that their empirical work supports this combination lends support to the validity of their measurement of these variables.
Evaluation Model of Job Effort as a Theoretical Framework

In the previous section, several criticisms of expectancy theory were discussed. Kopelman and Thomson (1976) have stated that:

"So long as researchers persist in using the conventional approach to test expectancy theory predictions the empirical results will probably continue to be modest. Perhaps only when those factors which complicate the prediction of work motivation and job performance are taken into account will researchers be able to determine the validity of expectancy theory." (p. 255).

Following this suggestion, expectancy theory, as typically formulated, is modified to analyze the effect of performance evaluation of job behavior. Earlier in this paper, relevant aspects of the evaluation process were identified. These aspects include three steps. First, performance is evaluated along various dimensions. Second, these evaluations are combined into an overall evaluation. Third, the overall evaluation is used as a basis for rewarding performance. The psychological literature on performance evaluation has indicated that if individuals believe that their performance on a dimension is properly evaluated, and performance on the dimension is important to the evaluator of performance, and the evaluation is expected to lead to rewards, then the individual should devote a great deal of effort to the dimension. But, if these conditions do not hold, an individual would not be expected to devote much effort to a particular dimension. Expectancy theory indicates that individuals will exert a great deal of effort in an attempt to
achieve a high level of performance only if they believe that a great deal of effort will result in a high level of performance and they believe that a high level of performance will result in valued outcomes.

In addition to the above, studies have indicated that the inclusion of a variable measuring the intrinsic value of work behavior can improve expectancy model predictions (Mitchell and Nebeker, 1973; Turney, 1974). As noted above, Turney found that the predictive power of an intrinsic activity value (IAV) was much higher than the predictive power of typical expectancy variables. Turney suggested that:

"One reason why IAV may have been slighted in previous expectancy theory research is that the prerequisite phenomenological framework was not provided when work behavior was only considered in terms of overall performance. Such an approach does not furnish the content specificity which a respondent requires in order to judge the extent of the pleasure he experiences as he is actually engaged in performing a work activity." (p. 69).

This study does furnish the necessary specificity since effort is examined with respect to performance dimensions.

**Evaluation Model of Directed Job Effort**

The model below incorporates (1) the steps in the evaluation process, (2) the common assertions in the psychological literature on performance evaluation, (3) the ideas from expectancy theory, and (4) an intrinsic activity value variable.
where \( W_i = f \left( E_{1i} \cdot E_{2i} \cdot E_{3i} \left( \sum_{j=1}^{n} I_j V_j \right) + IAV_i \right) \)

- \( W_i \) = the force to expend a high level of effort on activities related to evaluation dimension \( i \).
- \( E_{1i} \) = the expectancy that effort leads to effective performance on evaluation dimension \( i \).
- \( E_{2i} \) = the expectancy that being effective on evaluation dimension \( i \) leads to being judged as effective on dimension \( i \) by a superior.
- \( E_{3i} \) = the expectancy that being judged effective on evaluation dimension \( i \) contributes to a high overall evaluation of performance.
- \( I_j \) = the instrumentality of a high overall evaluation of performance for the attainment of second level outcome \( j \).
- \( V_j \) = the valence of second level outcome \( j \).
- \( IAV_i \) = the intrinsic value or desirability of engaging in activities related to evaluation dimension \( i \).

Variables \( E_{1i}, I_j \) and \( V_j \) are typical expectancy theory variables. The combination of these variables suggests that an individual will direct a high level of effort toward an evaluation dimension if (1) he expects a high level of effort will lead to effective performance \( (E_{1i}) \), (2) he expects effective performance will lead to certain outcomes \( (I_j) \) and (3) he values the outcomes \( (V_j) \). Variables \( E_{2i} \) and \( E_{3i} \) incorporate the assertions in the performance evaluation literature that an individual will direct a high level of effort toward an evaluation dimension if (1) he believes that his performance will be properly evaluated \( (E_{2i}) \) and
(2) he believes that a high level of evaluated performance on the dimension will lead to a high overall evaluation ($E_{3i}$). The variable $IAV_i$ suggests that irrespective of the other variables, an individual will direct a high level of effort toward an evaluation dimension if the activities associated with the dimension are rewarding in and of themselves.

The multiplicative combination of the expectancy terms follows from the sequential process described in figure 4.

![Sequential Evaluation Process Diagram](image)

**SEQUENTIAL EVALUATION PROCESS**

Figure 4.

If any of the individual linkages are weak, a relationship between effort and rewards is weak. Thus, the model suggests that an individual will work hard on activities related to a given dimension if he believes that working hard leads to being effective, he believes that his effective performance will be considered effective by his superior, he believes that being judged effective contributes to a high overall evaluation and he believes that a high overall evaluation leads to valued outcomes. However, even if the expectancies are low, an individual might exert effort if the activities themselves are rewarding (i.e. $IAV_i$ is high).
Departure from Traditional Job Effort Model

Essentially, the model has taken the notion from expectancy theory that individuals will exert job effort if they believe it will result in rewards and broken it down in two ways. First, it identifies the sequential process involved in linking effort and rewards in an evaluation context. Effort results in performance ($E_{1i}$) which results in evaluated performance ($E_{2i}$) which results in an overall evaluation ($E_{3i}$) which results in rewards ($I_j$). By focusing on the linkages between effort and rewards, the model is able to identify where the process may break down. This is especially important in an applied context. Consider the typical expectancy study. If the finding is that subjects do not perceive effort leading to rewards, the investigator still cannot determine what aspects of the work environment account for this perception. By identifying the linkages in the process, this model allows the investigator to attribute the breakdown in the linkage between effort and rewards to perceptions related to effort and performance, performance and evaluated performance, evaluated performance and overall evaluations or overall evaluations and rewards.

Also, this model decomposes the effort term of the traditional expectancy study. Usually, the dependent variable is some overall measure of job effort or performance. In order to analyze the extent to which an evaluation system directs behavior, the overall notion of job effort must be
broken down into those aspects of the job which are con-
sidered to be the relevant dimensions of performance. This
allows the investigator to determine explicitly which aspects
of the job are the objects of the most job effort. In pre-
vious sections, these aspects have been referred to as the
evaluation dimensions.

Analysis of Model Components

The model presented above suggests several ways a CPA
firm can direct the allocation of effort among various audit
activities. For example, suppose audit seniors were not
directing much effort toward planning audit activities. They
might be encouraged to direct more attention to this dimen-
sion by increasing the importance of audit planning in the
determination of overall evaluations. This, hopefully, would
increase the value of the $E_{3i}$ component in the model. Or,
the firm could take steps to insure that performance on the
planning dimension is properly evaluated. This should in-
crease the $E_{2i}$ component in the model.

In each case, a change in the evaluation environment is
expected to lead to a change in subordinate perceptions
and, therefore, subordinate behavior. Since sensitivity of
the subordinate's perceptions to the evaluation environment
is unknown, no definitive statement concerning subordinate
reactions to changes in the environment can be made. The
evidence bearing on the sensitivity of perceptions to the
evaluation environment is limited. First, consider the
expectancy that a dimension contributes to a high overall
evaluation of performance. The question is, can senior accountants infer the weight partners attach to each dimension in reaching overall evaluations? Cue utilization studies in psychology indicate that man has a great deal of difficulty inferring the weights attached to dimensions (Brehmer, 1972; Brehmer and Lindberg, 1970; Naylor and Clark, 1968; and Summers, 1962). The typical cue utilization study might present a subject with scores on two variables (cues) and ask a subject to predict the score on a third variable. At the end of each of several trials, the subject is shown the score on the third variable. The relationship between the two predictor variables and the dependent variables is usually a simple linear relationship. After repeated trials, a subject should be able to infer the weight that should be attached to each predictor variable in making a prediction. Given a linear relationship, this weight may be taken to be the beta weight found from a linear regression of the three variables. The finding is that individuals can at best determine the relative magnitudes of the weights. These findings imply that in an evaluation context, individuals may have a great deal of difficulty inferring the relative contribution of each performance dimension to overall evaluations of performance. Since the cue utilization studies have been conducted in very artificial settings, inference possibly is more accurate in the performance evaluation setting. Indeed, Kopelman (1976) found that individuals' perceptions
of expectancy theory components reflect actual organizational relationships. Also, Jorgensen, Dunnette and Pritchard (1973) found that experimental manipulations of performance-reward contingencies are reflected in perceptions of effort-pay probabilities.

A number of studies have indicated that an individual's position in an organization has a strong influence on perceptions. This influence could cause systematic differences in perceptions. In an early study, Dearborn and Simon (1958) indicated that individuals in different organizational positions have different perceptions of reality. Wahba and Shapiro (1973) had managers at different organizational levels rank twenty measures of effectiveness. These measures were reduced to three dimensions which the authors labeled (1) performance, (2) intercomponent and (3) intracomponent. The performance dimension was defined in terms of items dealing with coordination and cooperation, and the intracomponent dimension was defined in terms of items dealing with leadership and ability to motivate. The results indicated that managers at the top view performance as most important while managers at the bottom view intracomponent as most important.

In an accounting setting, Marshall (1968) found differences in perceptions of the audit task environment over organizational levels in CPA firms.

The implication for perceptions of the importance of evaluation dimensions \(E_{34}\) is that the influence on an audit
senior of his organizational position may be such that he is unable to perceive the relative importance of each evaluation dimension. A tentative theory may be developed around a consideration of the crucial contingencies of the task environment of each position. Subordinates may feel that those dimensions along which performance is crucial for effective completion of their own tasks are most important. Some research which lends support to this idea is provided by Dyer et al. (1976) who found that the criteria which managers use in determining salary increases of subordinates are the ones which they feel should be used in determining their own salary increases. They also found that the criteria employees feel are used to evaluate them are different from the criteria employees feel should be used to evaluate them. Lawler (1966) found that such a lack of congruence between perceived and desired criteria was related to job satisfaction.

DeCoster and Rhode (1971) used the California Psychological Inventory to examine the personality of CPA firm members. They compared the personality profiles of CPAs to the profiles of other professional groups. Their findings indicated that the stereotype of accountants as dull individuals with poor interpersonal abilities is unwarranted. However, although the study found little difference between accountants and other professionals, it did identify significant differences between partners, managers, seniors and assistants within CPA firms. Similar findings were obtained by Sorensen (1967). His study indicated that
partners are more bureaucratic and less professionally oriented than other members of CPA firms. In considering this study along with later work by Sorensen (1970), Sorensen, Rhode and Lawler (1973) concluded that a generation gap exists between the partners of CPA firms and new firm members. Lawler and Rhode (1976) have reached a similar conclusion. They note that "The more senior CPAs appear to be conservative and bureaucratic, while the staff employees value autonomy and are young and impatient." (p. 129). These differences in the characteristics of CPA firm members are relevant to this study since they may lead to differences in perceptions of the evaluation environment.

In considering the sensitivity of perceptions to the evaluation environment attention is limited to two components: $E_{2i}$ and $E_{3i}$. This is justified due to the limited time available to conduct this study and the fact that these two components would be more easily manipulated by top management than other components. For example, to manipulate $E_{2i}$ a firm would train evaluators so that fair evaluations would be obtained. To manipulate $V_j$ the firm would have to change the preferences of employees; a difficult if not impossible task.
Research Hypotheses

The assertions in the evaluation literature that effort will be directed to those job aspects which are properly evaluated and important to evaluation decision makers were included in the model developed in the previous section. The expectancy model of job effort was used as a basis for developing the structure of an evaluation model of directed job effort. The primary hypothesis of this study examines the validity of this model.

**Hypothesis 1:** The amount of effort audit seniors direct toward activities related to an evaluation dimension can be predicted from the model

\[ W_i = f (E_{1i}E_{2i}E_{3i}(\sum_{j=1}^{n} I_jV_j) + IAV_i) \]

Having examined the validity of the basic model, the next three hypotheses examine various aspects of the model suggested by previous research in expectancy theory. These aspects include (1) the ability of the model to predict various dependent variables and (2) the mathematical form of the model.

**Hypothesis 2:** The model \( W_i = f (E_{1i}E_{2i}E_{3i}(\sum_{j=1}^{n} I_jV_j) + IAV_i) \)

can predict audit seniors' self-rated effort better than self-rated performance, manager rated performance or assistant rated performance.

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In examining the hypotheses it is important to recall that senior accountants comprise the focal group of this study. That is, the model is used to predict the effort and performance of senior accountants while perceptions of senior accountants are used to measure model variables.
Hypothesis 3: The amount of effort audit seniors direct toward activities related to an evaluation dimension and their performance on the dimensions can be better predicted from a multiplicative combination of the expectancies, instrumentalities and the valences

$$E_i \cdot E_2 \cdot E_3 \left( \sum_{j=1}^{n} I_j V_j \right) + IAV_i$$

than from an additive combination of these terms

$$E_i + E_2 + E_3 + \left( \sum_{j=1}^{n} I_j V_j \right) + IAV_i$$

The next two hypotheses examine perceptions of evaluation accuracy ($E_2$) and perceptions as to the importance of evaluation dimensions ($E_3$). Previous sections of this study argue that these perceptions may not reflect actual environmental relationships. One way to examine this issue is to compare perceptions across organizational levels. Similar perceptions across levels suggest that the perceptions do reflect actual relationships.

Hypothesis 4: Audit senior perceptions of how often performance is properly evaluated ($E_2$) by audit managers are significantly different from audit manager perceptions of how often they properly evaluate performance.

Hypothesis 5: Audit senior perceptions of the importance attached to evaluation dimensions by audit partners in reaching overall evaluations ($E_3$) are significantly different from audit partner perceptions of the importance they attach to the evaluation dimensions.

The importance of perceptions of evaluation accuracy ($E_2$) and perceptions of the importance of evaluation dimensions in overall evaluations ($E_3$) are examined in the next two hypotheses.
Hypothesis 6: Audit seniors' perceptions of how often performance is properly evaluated ($E_{2i}$) are significantly related to their satisfaction with the evaluation of performance. The relationship is such that as audit seniors perceive that a proper evaluation is more likely, they are more satisfied with the evaluation of performance.

Hypothesis 7: The differences between audit senior perceptions of the importance attached to evaluation dimensions by audit partners ($E_{3i}$) and the importance audit seniors feel should be attached to evaluation dimensions are significantly related to satisfaction with the evaluation of performance. The relationship is such that as the differences become smaller, satisfaction increases.

The final hypothesis of this study examines the differences between the amount of effort individuals direct toward each evaluation dimension and the amount of effort firm partners desire to be directed. If there are substantial differences, they may be explained in terms of the evaluation model of directed job effort.

Hypothesis 8: The amount of effort audit seniors direct toward each evaluation dimension is significantly different from the amount of effort audit partners desire to be directed toward each evaluation dimension.
Chapter IV
RESEARCH METHODOLOGY

The previous chapter suggested eight hypotheses concerning the evaluation model of directed job effort and components of the model. This chapter outlines the methodology utilized to examine the hypotheses. The basic approach involves constructing four questionnaires to measure the evaluation model of directed job effort variables.

Participants in the Study

The participants in this study were audit partners, audit managers, audit seniors and audit assistants. Senior accountants were selected as the focal group for this study. That is, the study is interested in their perceptions of the evaluation environment and its affect on their job behavior. The behavior of senior accountants is particularly important because they are in charge of the audit on a day to day basis. Therefore, how well the audit is performed is largely determined by their job behavior. Questionnaires were also sent to audit partners, audit managers and audit assistants. Essentially, these individuals were asked to rate the performance of selected

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15See chapter II for a description of these positions and related duties.
audit seniors and in some cases their perceptions of the evaluation environment were also elicited.\(^{16}\)

All participants in the study were members of one large international firm of CPAs. The individuals worked in four different offices of the firm. These offices were located in four midwestern cities. Neither the firm offices or participants were randomly selected. The use of a non random sample was based upon considerations of the cost involved in traveling to firms located outside the midwest and the availability of firms willing to participate in the study. The sensitive nature of the evaluation data needed for this study made obtaining the cooperation of other firms a difficult task. The use of only one firm restricts the generalizability of the study. However, this is mitigated by the fact that most large CPA firms have similar types of clients and the members of these firms have somewhat similar backgrounds (e.g. educational training).

A total of 129 individuals were selected for participation in the study. Each of these individuals received a questionnaire through the firm's internal mail system. The individuals had previously been informed by the managing partner in each office that the firm was cooperating with the study but that the responses of individuals would not be revealed to the firm. This assurance of anonymity was repeated in the questionnaires. Also, the questionnaires

\(^{16}\)The questionnaires sent to the various groups are discussed in the next section.
were returned directly to the researcher using a stamped self-addressed envelope provided with the questionnaire. Of the 129 questionnaires sent, 108 were returned. Thus, the overall response rate was 84 percent. Table 1 provides a breakdown of the responses of audit seniors, audit assistants, audit managers and audit partners. The rather high response rates may be attributed to: (1) the request by firm partners that the individuals cooperate with the study, (2) the assurance by the firm and the researcher of anonymity, (3) the brief nature of the questionnaires, and (4) the keen interest of the participants in performance evaluation. This later point was brought out in personal interviews conducted during the pre-testing of the questionnaires. The individuals indicated they would be extremely interested in learning the perceptions of the evaluation process held by other firm members. The questionnaires stated that summary results of the study would be made available to everyone participating in the study.

**Questionnaire Development**

Four questionnaires were developed to obtain measures of the variables suggested by the research hypotheses. Appendices A, B, C, and D provide copies of the questionnaires sent to audit seniors (A), audit assistants (B), audit managers (C) and audit partners (D). Although the questionnaires were developed specifically for this study, the types of questions, the manner in which the questions were worded
# TABLE 1

**ANALYSIS OF QUESTIONNAIRE RETURNS**

<table>
<thead>
<tr>
<th></th>
<th>Audit Seniors</th>
<th>Audit Assistants</th>
<th>Audit Managers</th>
<th>Audit Partners</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Questionnaires</strong></td>
<td>43</td>
<td>41</td>
<td>26</td>
<td>19</td>
<td>129</td>
</tr>
<tr>
<td><strong>Sent</strong></td>
<td>33</td>
<td>33</td>
<td>25</td>
<td>17</td>
<td>108</td>
</tr>
<tr>
<td><strong>Returned</strong></td>
<td>77%</td>
<td>80%</td>
<td>96%</td>
<td>89%</td>
<td>84%</td>
</tr>
</tbody>
</table>


and the scales used to measure responses to the questions were based upon previous studies. Studies by Lawler and Porter (1967), Lawler and Suttle (1973), Mitchell and Nebeker (1974), and Turney (1974) were particularly useful in developing questions for this study.

The final set of items contained in each questionnaire was determined after extensive pre-testing. Professors of accounting and professors of psychology at The Ohio State University made detailed comments on the form and content of the questionnaires. Several Ph.D. students in accounting responded to earlier drafts of the questionnaires and made useful suggestions with respect to clarity and time required to complete the items. In addition, the questionnaires were reviewed by the managing partner of one of the offices used in the study. This individual was especially helpful in identifying the types of items over which performance is evaluated.

The questionnaire given to audit seniors is especially important since it measures most of the variables in the evaluation model of directed job effort. Therefore, the preliminary draft of this questionnaire was administered to five practicing audit seniors. Following completion of the questionnaire, each senior was interviewed for approximately one-half hour. Essentially, each individual was asked to explain what each question meant to him and why he responded as he did. Discrepancies between the intended meaning of certain questions and the interpreted meaning
were revealed. The final form of the questionnaire incorporated changes necessary to correct these discrepancies. Also, these interviews revealed that the questions were pertinent to the evaluation process in the firm.

**Questionnaire Items and Variable Measurement**

In chapter III, the evaluation model of directed job effort was stated to be:

\[ W_i = f \left( E_{1i} \cdot E_{2i} \cdot E_{3i} \left( \sum_{j=1}^{n} I_j V_j \right) + IAV_i \right) \]

where \( W_i \) = the force to expend a high level of effort on activities related to evaluation dimension \( i \).

\( E_{1i} \) = the expectancy that effort leads to effective performance on evaluation dimension \( i \).

\( E_{2i} \) = the expectancy that being effective on evaluation dimension \( i \) leads to being judged as effective on dimension \( i \) by a superior.

\( E_{3i} \) = the expectancy that being judged effective on evaluation dimension \( i \) contributes to a high overall evaluation of performance.

\( I_j \) = the instrumentality of a high overall evaluation of performance for the attainment of second level outcome \( j \).

\( V_j \) = the valence of second level outcome \( j \).

\( IAV_i \) = the intrinsic value or desirability of engaging in activities related to evaluation dimension \( i \).

This section relates the variables to their measurements in the four questionnaires.
Performance Dimensions

The evaluation model of directed job effort is used to predict the allocation of effort to various dimensions of the job. For purposes of this study, nine dimensions of performance were identified. These are reproduced in Table 2. In chapter II several methods of determining the dimensions of performance were suggested (e.g., a job analysis or a factor analytic approach). Unfortunately, all of these methods are both time consuming and expensive. As an alternative to these approaches, the evaluation forms of several international firms of CPAs were obtained. These forms were used to identify the general types of items over which performance is, in practice, being evaluated. Based upon personal experience and an analysis of the evaluation forms, a tentative set of performance evaluation dimensions was developed. The items were reviewed in detail by the managing partner of one of the offices participating in the study as well as the five CPAs who participated in the pre-test of the questionnaire administered to audit seniors. These individuals agreed upon the importance of all of the evaluation dimensions listed in Table 2 and, indeed, all but one of the individuals considered the listing to be all inclusive (i.e., they did not feel that their performance was evaluated over any other dimensions). In addition, the list of dimensions developed for this study is quite similar
<table>
<thead>
<tr>
<th></th>
<th>Performance Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Understanding accounting principles, auditing standards and firm technical releases.</td>
</tr>
<tr>
<td>2</td>
<td>Planning audit work.</td>
</tr>
<tr>
<td>3</td>
<td>Promoting additional services to current clients.</td>
</tr>
<tr>
<td>4</td>
<td>Revising audit programs.</td>
</tr>
<tr>
<td>5</td>
<td>Providing appropriate on-the-job training of assistants.</td>
</tr>
<tr>
<td>6</td>
<td>Recognizing clients significant problems and suggesting solutions suitable for inclusion in a letter to management.</td>
</tr>
<tr>
<td>7</td>
<td>Reviewing work of assistants.</td>
</tr>
<tr>
<td>8</td>
<td>Obtaining the cooperation and respect of client's personnel.</td>
</tr>
<tr>
<td>9</td>
<td>Demonstrating an area of special competence (e.g. knowledge of tax laws, SEC practice or a particular industry).</td>
</tr>
</tbody>
</table>
to the list of dimensions developed by Maher et al. (1976). This provides additional support for the validity of these dimensions.

**Dependent Variables**

The evaluation model of directed job effort will be used to predict the amount of effort seniors devote to the various performance dimensions and their performance on the dimensions. Mitchell (1974) has discussed the difficulty involved in determining the meaning of effort. Vroom (1964) states that:

"The term 'level of task related effort' is used throughout this book to refer to the degree to which energy is expended in responses which lead to the performance of task functions. Relevant behavioral measures would include amount of time worked, frequency of task related responses per unit time, and amplitude of task related responses" (p. 193).

This study follows Vroom's suggestion and measures effort in terms of the time spent on job related activities. A similar measure of effort has been used by Mitchell and Nebeker (1974). The use of time as a measure of effort is further justified because it is an objective measure.

Two questions were used to measure the amount of time audit seniors direct toward each performance criterion. Both measures were self-reported. Table 3 presents the questions and indicates the item on the questionnaire. The first question asked the seniors to rate the absolute amount of time they direct toward each evaluation dimension ($T_{ai}$). Responses to this question were measured on a
### TABLE 3
DEPENDENT VARIABLE MEASURES

<table>
<thead>
<tr>
<th>Questionnaire</th>
<th>Questionnaire Item</th>
<th>Variable</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>#3, Part 1.</td>
<td>$T_{ai}$</td>
<td>How much time do you typically direct toward this evaluation criterion?</td>
</tr>
<tr>
<td>A</td>
<td>#4, Part 1.</td>
<td>$T_{ri}$</td>
<td>How much time do you direct toward this criterion in comparison to other seniors?</td>
</tr>
<tr>
<td>A</td>
<td>#1, Part 1.</td>
<td>$S_{pi}$</td>
<td>What is your typical performance on this criterion?</td>
</tr>
<tr>
<td>B</td>
<td>Only one question asked.</td>
<td>$A_{pi}$</td>
<td>What is the senior's performance on this criterion?</td>
</tr>
<tr>
<td>C</td>
<td>#1, Part 1.</td>
<td>$M_{pi}$</td>
<td>What is the senior's performance on this criterion?</td>
</tr>
</tbody>
</table>
seven point Likert-type scale. The verbal anchors used ranged from very little time (1), to fair amount of time (4), to great deal of time (7). It was thought that audit seniors might experience some difficulty in determining the absolute amount of time they direct toward the activities associated with each evaluation criterion. Therefore, the seniors were also asked to rate the amount of time they spent in comparison to other seniors. That is, they were asked to rate the amount of time they direct relative to other senior accountants ($T_{ri}$). Responses to this question were measured on a seven point Likert-type scale. The verbal anchors ranged from much less time (1), to about the same amount of time (4), to much more time (7).

The performance of audit seniors was rated by audit assistants and audit managers as well as by the seniors themselves (i.e. a self-rated measure of performance). Table 3 indicates what items on the questionnaires measured performance. Audit senior self-ratings of performance ($SP_i$), audit assistant ratings of performance ($AP_i$) and audit manager ratings of performance ($MP_i$) were all measured on seven point Likert-type scales. The verbal anchors ranged from poor (1), to average (4), to outstanding (7).

**Expectancy Variables**

The evaluation model of directed job effort contains three expectancy variables ($E_{1i}$, $E_{2i}$, and $E_{3i}$). The questions used to measure these variables are indicated in Table 4.
### TABLE 4
EXPECTANCY VARIABLE MEASURES

<table>
<thead>
<tr>
<th>Questionnaire Item</th>
<th>Variable</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>A #5, Part 1.</td>
<td>$E_{1i}$</td>
<td>What is the relationship between the amount of time you direct toward this evaluation criterion and performance on this criterion?</td>
</tr>
<tr>
<td>A #2, Part 1.</td>
<td>$E_{2i}$</td>
<td>How often is your performance on this criterion rated properly?</td>
</tr>
<tr>
<td>A #6, Part 1.</td>
<td>$E_{3i}$</td>
<td>What is the relative importance of this evaluation criterion in determining overall evaluations?</td>
</tr>
</tbody>
</table>
Mitchell (1974) has stated that there are almost as many ways to measure valences, instrumentalities and expectancies as there are investigations. Vroom (1964) conceptualized expectancy variables as *probabilities* and many authors have measured them as such. For example, Jorgensen, Dunnette, and Pritchard (1973) asked their subjects to rate the chances in 100 that a person who puts a lot of effort into their job will receive valued outcomes. Turney (1974) asked subjects to estimate the likelihood between .00 and 1.00 that each of four activities contributes to being highly technically competent. Other authors have measured expectancies as *relationships*. For example, Lawler and Porter (1967) asked subjects to indicate how *helpful* a behavior was in obtaining valued outcomes. Mitchell and Nebeker (1973) asked subjects to rate the degree to which time spent on academic activities *leads* to good grades. This study resolved the controversy between measurement as a probability and measurement as a relationship on the basis of which made more sense to the subjects in the pre-test of the questionnaire. In the pre-test of variable $E_{11}$, it was discovered that if the variable was measured as a probability, subjects who reported a high probability that effort leads to good performance often reported spending little effort. Their logic was that given their ability, little effort was required. Conceptualization of $E_{11}$ as a relationship between time spent on a performance dimension and performance on the
dimension seemed to be better understood and made more
sense in the context of the study. To insure that the
subjects understood the question, it was prefaced by the
following statement:

"If spending a lot of time results in high per­
formance, then performance and time are related.
If spending a lot of time does not result in high
performance, then performance and time are not
related. If spending very little time results in
high performance, then performance and time are
not related. If spending very little time results
in a low level of performance, then performance
and time are related."

Senior accountants then answered the question indicated
in Table 4 on a seven point Likert-type scale. The verbal
anchors ranged from not related (1), to somewhat related
(4), to highly related (7).

The second expectancy variable ($E_{2i}$) was clearly
understood as a probability and, therefore, was measured
as such. Since previous expectancy studies have not been
concerned with performance evaluation, they have not measured
the correspondence between perceived performance and evalua­
ted performance. Therefore, there was no guidance in the
literature with respect to the exact phrasing of this
question. However, the question is consistent with the
phrasing used by Lawler and Suttle (1973). Responses to
the question were measured on a seven point Likert-type
scale. Verbal anchors ranged from never (1), to sometimes
(4), to always (7).
The third expectancy variable ($E_{3i}$) was similar to the first variable ($E_{1i}$) in that measurement in terms of a probability did not seem as useful as measurement in terms of a relationship. As indicated above, Turney (1974) had subjects indicate the likelihood that each of four activities contributes to being highly technically competent. With respect to Turney's approach, subjects might think "This item either does contribute or it does not contribute to being competent. Therefore, the probability is either .00 or 1.00." Simply asking the subjects to rate the relative importance of the items is a much clearer and direct approach. Again, this is similar to the approach used by Lawler and Porter (1967). Responses to the question measuring $E_{3i}$ were made on a seven point Likert-type scale with verbal anchors ranging from much less than other criteria (1), to about the same as other criteria (4), to much more than other criteria (7).

Valences of Second Level Outcomes.

Table 5 presents a list of the second level outcomes used in the study. Mitchell (1974) has suggested that subjects be allowed to select outcomes which they consider important. Somewhat at odds with this recommendation, Mitchell has also suggested that a large number of second level outcomes is detrimental. In this study, subjects were not allowed to select from a list of outcomes. However, the outcomes used are similar to outcomes used by Ferris (1977).
TABLE 5
SECOND LEVEL OUTCOMES

<table>
<thead>
<tr>
<th></th>
<th>First Level Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Feeling of Accomplishment.</td>
</tr>
<tr>
<td>2</td>
<td>Job Pressure.</td>
</tr>
<tr>
<td>3</td>
<td>Promotion to Manager.</td>
</tr>
<tr>
<td>4</td>
<td>Challenging Audit Assignments.</td>
</tr>
<tr>
<td>5</td>
<td>Out-of-Town Assignments.</td>
</tr>
<tr>
<td>6</td>
<td>Respect From Fellow Accountants.</td>
</tr>
<tr>
<td>7</td>
<td>Freedom to Carry Out Own Ideas.</td>
</tr>
<tr>
<td>8</td>
<td>High Pay.</td>
</tr>
<tr>
<td>9</td>
<td>Overtime.</td>
</tr>
<tr>
<td>10</td>
<td>Job Security.</td>
</tr>
</tbody>
</table>
and Dillard and Copeland (1976) who conducted expectancy theory studies using CPAs. The question measuring the valence of second level outcomes is indicated in Table 6. Many authors have used a question which asks subjects how important an outcome is (Lawler, 1968; Mitchell and Albright, 1972; Wanous, 1972). However, Mitchell (1974) notes that the Vroom (1964) notion of anticipated satisfaction appears to be closer to a desirability dimension (Lawler and Suttle, 1973; Turney, 1974). This study follows Mitchell's recommendation. The responses to the question were measured on a seven point Likert-type scale with verbal anchors ranging from extremely undesirable (1), to neutral (4), to extremely desirable (7). These measures were later rescaled to a seven point scale ranging from -3 to +3. This is in keeping with Mitchell's recommendation to use both positive and negative measures of desirability.

Instrumentality

Most studies treat instrumentality as a probability (Mitchell, 1974). However, Vroom (1964) recommended that the variable is more like a correlation reflecting the relationship between two outcomes. Conceived in this manner, instrumentality should have both positive and negative values. This approach is necessary when valence is measured in terms of negative as well as positive values. Suppose both valences and instrumentalities are measured on seven point scales ranging from -3 to +3. Then a -3 instrumentality
### Table 6

**Valence Measure**

<table>
<thead>
<tr>
<th>Questionnaire</th>
<th>Questionnaire Item</th>
<th>Variable</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>#1, Part 2.</td>
<td>$V_j$</td>
<td>How desirable is this condition or outcome?</td>
</tr>
</tbody>
</table>

### Table 7

**Instrumentality Measure**

<table>
<thead>
<tr>
<th>Questionnaire</th>
<th>Questionnaire Item</th>
<th>Variable</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>#5, Part 2.</td>
<td>$I_j$</td>
<td>How much does a high overall evaluation of your performance affect the likelihood of this condition or outcome occurring?</td>
</tr>
</tbody>
</table>
times a -3 valence gives the same value as a +3 instrumentality times a +3 valence. However, suppose instrumentality is measured on a one to seven scale (the case where it is conceived of as a probability). Then a low instrumentality (1) times a negative valence (-3) does not equal a high instrumentality (7) times a positive valence (+3).

The verbal anchors for the instrumentality question used in this study ranged from greatly decreases the chance of occurrence (1), to does not affect the chance of occurrence (4), to greatly increases the chance of occurrence (7). These measures were rescaled to range from -3 to +3.

**Intrinsic Activity Values**

As discussed in chapter III, Turney (1974) found that a measure of the attraction of work activity in and of itself was useful in predicting effort. The question used to measure the variable in this study is similar to Turney's question. (See Table 8). Responses to the question were measured on a seven point Likert-type scale with verbal anchors ranging from strongly dislike (1), to neutral (4), to strongly like (7). These measures were rescaled to range from -3 to +3.

**Other Variables Related to Audit Seniors**

The variables listed above are related to the evaluation model of directed job effort. The hypotheses listed in the previous chapter require that two additional variables be measured (see Table 9). The first variable measures the
### TABLE 8

**INTRINSIC ACTIVITY VALUE MEASURE**

<table>
<thead>
<tr>
<th>Questionnaire</th>
<th>Questionnaire Item</th>
<th>Variable</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>#8, Part 1.</td>
<td>IAV&lt;sub&gt;i&lt;/sub&gt;</td>
<td>How much do you like the activities associated with this criterion?</td>
</tr>
</tbody>
</table>
### TABLE 9

OTHER VARIABLES RELATED TO AUDIT SENIORS

<table>
<thead>
<tr>
<th>Questionnaire</th>
<th>Questionnaire Item</th>
<th>Variable</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>#7, Part 1.</td>
<td>DI₁</td>
<td>What should be the relative importance of this criterion in determining overall evaluations?</td>
</tr>
<tr>
<td>A</td>
<td>#2, Part 2.</td>
<td>SM</td>
<td>How satisfied are you with the way your performance is evaluated by audit managers?</td>
</tr>
<tr>
<td>A</td>
<td>#3, Part 2.</td>
<td>SP</td>
<td>How satisfied are you with the way the data reported on the staff evaluation reports are used by the partners in arriving at an overall evaluation of your performance?</td>
</tr>
</tbody>
</table>
importance seniors feel should be attached to each performance criterion. That is, it measures the desired importance \( (DI_i) \). Responses to the question measuring this variable were obtained using a seven point Likert-type scale. Verbal anchors ranged from much less than other criteria (1), to about the same as other criteria (4), to much more than other criteria (7). The second variable measures senior accountant satisfaction with the evaluation system. Two measures were made: (1) satisfaction with evaluation by managers and (2) satisfaction with use by partners of manager evaluations in arriving at overall evaluations. Both concepts were measured on seven point scales with verbal anchors ranging from extremely dissatisfied (1), to indifferent (4), to extremely satisfied (7).

Additional Audit Manager Variable

In addition to rating the performance of certain audit seniors, audit managers were also asked to rate their ability to properly evaluate the performance of senior's on each criterion \( (MA_i) \). Table 10 lists the question used to measure this variable. Responses used to measure \( MA_i \) were obtained using a seven point Likert-type scale. Verbal anchors ranged from never (1), to sometimes (4), to always (7).

Other Variables Related to Audit Partners

Two variables related to audit partners were measured (see Table 11). The first variable was a measure of the importance partners attached to each evaluation criterion \( (PI_i) \).
<table>
<thead>
<tr>
<th>Questionnaire Item</th>
<th>Variable</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>B #2, Part 2.</td>
<td>MA&lt;sub&gt;i&lt;/sub&gt;</td>
<td>How often is performance on this evaluation criterion rated properly?</td>
</tr>
</tbody>
</table>
TABLE 11
OTHER VARIABLES RELATED TO AUDIT PARTNERS

<table>
<thead>
<tr>
<th>Questionnaire Item</th>
<th>Variable</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>D #1</td>
<td>PI&lt;sub&gt;i&lt;/sub&gt;</td>
<td>What is the relative importance of this criterion in determining your overall evaluation of a senior's performance?</td>
</tr>
<tr>
<td>D #2</td>
<td>PT&lt;sub&gt;i&lt;/sub&gt;</td>
<td>How much time do you feel a senior should typically direct toward this evaluation criterion?</td>
</tr>
</tbody>
</table>
Responses to this question were measured on a seven point Likert-type scale. Verbal anchors ranged from much less than other criteria (1), to about the same as other criteria (4), to much more than other criteria (7). The second variable measured the time partners feel should be directed toward each evaluation criterion ($PT_1$). Responses were measured on a seven point Likert-type scale. Verbal anchors ranged from very little time (1), to fair amount of time (4), to great deal of time (7).

Reliability and Validity of Evaluation Model Variables

Reliability

One way to measure the appropriateness of the questions developed for this study is to assess their reliability. Subject responses to identical questions obtained under similar circumstances should be reproducible. This aspect of a questionnaire item is referred to as its reliability (Magnusson, 1966). There are four common methods of estimating reliability: (1) the test-retest method, (2) the parallel-test method, (3) the split-half method and (4) the Kuder-Richardson method. Parallel-test, split-half and Kuder-Richardson methods all require that multiple questions be constructed to measure the same variable. Thus, they require lengthy questionnaires. This probably accounts for the use of the test-retest method in most expectancy studies reporting reliability measures (Constantinople, 1967; Lawler, 1968; Schwab and Dyer, 1974; and
Sheridan, Richards and Slocum, 1973). Fairly high reliability measures have been reported in the expectancy literature (Mitchell, 1974). For example, Lawler (1968) reported a reliability measure for the expectancy variable of .48 while Galbraith and Cummings (1967) report a reliability measure for the valence component of .50. However, recently, DeLeo and Pritchard (1974) have questioned the survey approach taken by expectancy studies on the grounds that the measures are not reliable. Their study found reliability to be .60 for valence measures and .56 for instrumentality measures. They state that, "One wonders what happens to the reliability of the model's predictions of effort when valences with a median reliability of .60 are multiplied by instrumentalities with a median reliability of .50 and then the sum of these multiplied by expectancy with a reliability of .64 for an eight item scale. If we assume that the reliability of the final composite is as high as the best element, the reliability of the composite would be .64" (p. 147). However, contrary to DeLeo and Pritchard (1974), Kopelman and Thompson (1976) find that the final composite can have greater reliability than any expectancy model component. They report reliability measures for expectancy (E) of .45 and valence (V) of .42 but for E·V they found a reliability of .58.
This study limited its investigation of reliability to items contained on the questionnaire administered to audit seniors. This is justified on the grounds that audit seniors are the focal group of this study, the vast majority of the variables measured in this study are measured in terms of the responses of audit seniors, and those variables measured by responses from audit assistants, audit managers or audit partners are measured in terms of questions which are similar, if not identical, to the questions asked of audit seniors.

A test-retest approach to reliability was utilized in this study. Ten audit seniors were randomly selected. Approximately three weeks after having received the first questionnaire, these individuals were asked to complete an identical questionnaire. The use of a three-week interval should eliminate spuriously high reliability measures which result solely from the subjects' memory of responses to the first questionnaire. Of the ten individuals selected, only four returned retest questionnaires. This low rate of response is probably due to the tight schedule faced by individuals in CPA firms. Also, some of the individuals may have been on their summer vacation. The reliability measures must, therefore, be interpreted with caution. Table 12 presents the reliability measures. The reliability of variables $T_{ai}$ through $IAV_i$ were assessed by correlating responses to the original and the retest questionnaires across
subjects and across performance dimensions. With four subjects and nine dimensions, this provides thirty-six observations per variable. The reliability of variables I and V were assessed by correlating responses to the original and the retest questionnaires across subjects and across second level outcomes. With four subjects and ten second level outcomes, this provides forty observations per variable.

The results generally support the conclusion that the variables were measured reliably. All correlations were significant at the .01 level. In addition, only one of the variables \( E_{21} \) had a reliability measure less than .50. These results are especially encouraging considering the length of time between the original questionnaire and the retest questionnaire. In fact, as Mitchell (1974) notes, some changes over time are not unexpected and, in fact, are actually predicted.

Validity

Even if the questionnaire items are consistently answered (i.e., they are reliable) it is possible that the participants are consistently answering something other than what is intended by the study. Validity is the term used to describe whether or not a question measures what it is supposed to measure. As noted earlier, the questionnaire administered to senior accountants was pre-tested. Several practicing accountants, academic accountants, psychologists and students of accounting commented on the items contained in the questionnaire. These comments
TABLE 12

RELIABILITY OF MODEL VARIABLES

<table>
<thead>
<tr>
<th>Variable</th>
<th>Reliability</th>
<th>Significance Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>T_{ai} (absolute amount of time spent)</td>
<td>.84</td>
<td>p&lt; .01</td>
</tr>
<tr>
<td>T_{ri} (relative amount of time spent)</td>
<td>.70</td>
<td>p&lt; .01</td>
</tr>
<tr>
<td>S_{Pi} (self-rating of performance)</td>
<td>.64</td>
<td>p&lt; .01</td>
</tr>
<tr>
<td>E_{1i} (expectancy between effort and performance)</td>
<td>.66</td>
<td>p&lt; .01</td>
</tr>
<tr>
<td>E_{2i} (expectancy between perceived performance and evaluated performance)</td>
<td>.42</td>
<td>p&lt; .01</td>
</tr>
<tr>
<td>E_{3i} (expectancy between evaluated performance and overall evaluation)</td>
<td>.60</td>
<td>p&lt; .01</td>
</tr>
<tr>
<td>D_{Ii} (desired importance attached to performance dimension)</td>
<td>.67</td>
<td>p&lt; .01</td>
</tr>
<tr>
<td>I_{j} (instrumentality of overall evaluation for second level outcome)</td>
<td>.53</td>
<td>p&lt; .01</td>
</tr>
<tr>
<td>V_{j} (valence of second level outcome)</td>
<td>.85</td>
<td>p&lt; .01</td>
</tr>
</tbody>
</table>
indicated potential misinterpretation of questions. These comments were incorporated into the final draft of the questionnaire and lend assurance to the contention that the questions did, indeed, measure what they were intended to measure.

The validity of expectancy model variables has received little attention in the published literature. The approach to validity taken by Mitchell and Nebeker (1973) and Dachler and Mobley (1973) requires that separate measures be made of all model variables. In view of the fairly elaborate model developed in this study, this approach would be too burdensome. Such an approach would constitute a separate study. Therefore, attention to the validity of the questions used to measure the model variables is, in general, limited to the pre-test procedures described above. The exception to this limitation is made for the dependent variable of performance on evaluation dimensions. With respect to this variable, there are three independent measures: (1) audit senior self-ratings of performance on the nine dimensions, (2) audit assistant ratings of seniors' performance on the nine dimensions and (3) audit manager ratings of seniors' performance on the nine dimensions. Since there are multiple dimensions being rated by multiple raters, validity can be assessed using a multidimension-multirater approach (Lawler, 1967). This approach involves analyzing a correlation matrix of raters and evaluation
dimensions (see Table 13). The analysis is aimed at determining the convergent and discriminant validity of the ratings (Campbell and Fiske, 1959). Convergent validity is demonstrated by correlations between different raters on the same dimension being significantly different from zero. In the correlation matrix, these are the circled diagonal correlations. Discriminant validity is demonstrated by the correlations between different raters rating the same dimension being greater than the correlations between the same rater rating different dimensions (the solid triangle in the correlation matrix). These later correlations are referred to as heterodimension-heterorater correlations. Lawler (1967) points out that the major problem in the development of criterion measures is not that they fail to meet the requirements of convergent or discriminant validity, but that most studies fail to report any information on the validity of criterion measures. "If insignificant results are obtained it is impossible to know whether the problem lies in the criterion or in the predictor." (p. 373).

Unfortunately, there are two problems associated with the multidimension-multirater approach. First, even if convergent and discriminant validity are found, it is possible that all of the raters are making the same invalid inference regarding performance. However, this case should be sufficiently rare so that confidence can be placed in
ratings which demonstrate convergent and discriminant validity. Second, if convergent and discriminant validity are not found, it is still possible that the different raters are providing valuable information on identical traits. As Lawler (1967) points out it is impossible to ever finally validate a criterion. At best, information can be gathered which lends support to the presence or absence of valid measures.

As indicated in Table 13, there is only partial evidence regarding convergent validity. There is substantial agreement between seniors and managers and between assistants and managers on dimensions 1, 2, 5, and 9. However, there is significant agreement between seniors and assistants on only dimensions 7 and 9. No performance dimension exhibits discriminant validity. Two aspects of the performance ratings are apparent. First, halo error exists (evidenced by the large number of significant correlations in the hetero-dimension - monorater triangles). Second, the three groups of raters are not seeing the same things. Now, two possible conclusions can be drawn. The first is that the raters are seeing different, though valid, manifestations of performance on the same dimensions. The second is that the ratings are simply not valid. To continue with the study, a temporary assumption will be that the first conclusion is appropriate. At least, having performed this analysis, more sensible interpretations of the results of the research are
### TABLE 13
MULTIDIMENSION-MULTIRATER MATRIX

<table>
<thead>
<tr>
<th></th>
<th>Audit Senior</th>
<th>Audit Manager</th>
<th>Audit Assistant</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>S_1</td>
<td>S_2</td>
<td>S_3</td>
</tr>
<tr>
<td>S_1</td>
<td>.53</td>
<td>.33</td>
<td>.03</td>
</tr>
<tr>
<td>S_2</td>
<td>.33</td>
<td>.53</td>
<td>.33</td>
</tr>
<tr>
<td>S_3</td>
<td>.03</td>
<td>.33</td>
<td>.53</td>
</tr>
<tr>
<td>S_4</td>
<td>.29</td>
<td>.03</td>
<td>.33</td>
</tr>
<tr>
<td>S_5</td>
<td>.42</td>
<td>.29</td>
<td>.03</td>
</tr>
<tr>
<td>S_6</td>
<td>.59</td>
<td>.42</td>
<td>.29</td>
</tr>
<tr>
<td>S_7</td>
<td>.29</td>
<td>.59</td>
<td>.42</td>
</tr>
<tr>
<td>S_8</td>
<td>.53</td>
<td>.33</td>
<td>.53</td>
</tr>
<tr>
<td>S_9</td>
<td>.33</td>
<td>.53</td>
<td>.33</td>
</tr>
</tbody>
</table>

Note: p < 0.05 when r ≥ 0.33.
possible. If the evaluation model of directed job effort is unable to predict performance, then one might properly conclude that the lack of valid criterion measures is contributing to the poor predictive power. On the other hand, if the model is able to predict performance, then one might conclude that the raters are, indeed, rating different though valid aspects of performance on each dimension.

Statistical Methodology for Hypothesis Testing

The first three hypotheses of this study are concerned with:

(1) The ability of the evaluation model of directed job effort to predict the amount of time spent on performance dimensions.

(2) The ability of the model to predict self-rated effort vs. self-rated performance and manager and assistant rated performance.

(3) The mathematical form of the model.

Ten multiple regression models are used to examine these three hypotheses. Two sets of independent variables are used to predict five different independent variables. Table 14 lists the various models. Regression models will be estimated across subjects and across performance dimensions. For example, the set of observations used to estimate model 1 is:
### TABLE 14

INDEPENDENT AND DEPENDENT VARIABLES USED IN MULTIPLE REGRESSION MODELS

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>$T_{ai}$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$T_{ri}$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$SP_i$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$AP_i$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$MP_i$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Independent Variables**

**(Set No. 1)**

\[
E_{1i} \cdot E_{2i} \cdot E_{3i} \left( \sum_{j=1}^{n} i_{ij} V_{ij} \right)
\]

IAV$_i$

**(Set No. 2)**

\[
E_{1i}
\]

$E_{2i}$

\[
E_{3i} \left( \sum_{j=1}^{n} i_{ij} V_{ij} \right)
\]

IAV$_i$
where \((1<i<d)\) indicates the evaluation dimension.

\((1<k<s)\) indicates the subject.

\((1<j<n)\) indicates the second level outcome.

With 33 subjects and 9 evaluation dimensions, there are 297 observations used to estimate each regression equation. Since more than one observation is obtained from each subject, this approach violates a strict interpretation of the independence assumption of multiple regression. This violation is mitigated by two factors. First, every effort was made to develop a set of independent evaluation dimensions. The instructions to the questionnaires gave examples of specific behaviors associated with each dimension. In the pretest of the questionnaires, the subjects indicated that they could distinguish each dimension. However, as indicated in the heterodimension-monorater triangle in Table 13, the subjects empirically had some difficulty in distinguishing between the dimensions. Second, the fact that the assumption of independence is violated does not invalidate the interpretation of the multiple
correlation coefficient (R). The square of this statistic still indicates the percentage of criterion variance accounted for by a linear combination of independent variables. Violation of the assumption only affects statistical tests of significance of regression statistics. Therefore, some information, unqualified by violation of assumptions, is still possible. Regression analysis has been shown to be robust with respect to violations of other assumptions (Bohrnstedt and Carter, 1971). Unfortunately, the consequences of violating the independence assumption have not been adequately investigated. Therefore, inferences from regression analysis must be carefully drawn.

The first hypothesis will be tested using model 1 and model 2 in Table 14. Support for the hypothesis requires that both models can account for significant percentages of criterion variance. Support for hypothesis 2 exists if the size of the multiple correlation coefficients of models 1 and 2 are significantly greater than the multiple correlation coefficients of models 3, 4, and 5. Hypothesis 3 will be examined by comparing the multiple correlation coefficients of models 1, 2, 3, 4 and 5 with the multiple correlation coefficients of models 6, 7, 8, 9 and 10.
If the former are greater, the implication is that a multiplicative combination of expectancies, instrumentalities and valences is more appropriate than an additive combination of these variables.

The review of expectancy theory research (Chapter III) indicated that several authors have investigated the relative importance of the components of expectancy models. The results are not systematic. This study will examine the importance of the variables contained in the evaluation model of directed job effort. However, no formal hypothesis is proposed and the analysis will be somewhat descriptive. A major problem involves deciding exactly how to measure the importance of the variables. Two methods will be used. The first involves testing the statistical significance of the beta coefficients in the multiple regression models. If the null hypothesis that the beta weight equals zero cannot be rejected, this supports the idea that the variable is not important. If the null hypothesis can be rejected, this supports the idea that the variable is important. Additional insight into the importance or usefulness of model variables will be obtained from stepwise regression analysis.

Since there are ten multiple regression models, differences in the significance of the beta coefficients may exist for identical variables across models. Stepwise regression procedures will be used to gain added insight into the importance or usefulness of the model variables.
This technique is helpful in selecting a set of useful predictor variables from a larger set. The technique selects variables for a regression equation one at a time. The first variable selected is the one with the highest first-order product moment correlation with the dependent variable. The next variable selected is the one which adds the most to the multiple correlation of the regression equation. The increase in multiple correlation is tested for significance using a partial F test. The technique continues by selecting the variable which combines with the first two to form the best three variable regression equation. Additional variables are added until the increase in multiple correlation is no longer significant. Variables which were previously significant can also be removed if the inclusion of additional variables renders them no longer useful (Darlington, 1968).

The independent variables included in the set of potentially useful predictors are:

Variable 1 = $E_1$
2 = $E_2$
3 = $E_3$
4 = $E_1 \cdot E_2$
5 = $E_1 \cdot E_3$
6 = $E_2 \cdot E_3$
7 = $E_1 \cdot E_2 \cdot E_3$
8 = $\sum_{i=1}^{n} V_j$
The stepwise procedure will select from this set of predictor variables, those which are significantly related to the criterion. The F statistics of the variables entering the stepwise regression models will serve as an additional criterion of a variable's usefulness. Large F ratios imply that a variable is an important predictor of the criterion.

This procedure will also shed additional light on hypothesis 3. Support for the multiplicative combination of expectancies, instrumentalities and valences would exist if variables 9 and 10 are included in the set of useful predictors. Support for an additive combination would exist if variables 1, 2, 3, 8 and 10 are included. Given the set of predictor variables, it is possible to find partial support for a multiplicative combination. This results from the inclusion of variables 4, 5 and 6.

Implicit in all of the methods discussed above is the assumption that parametric statistical techniques are appropriate. The long standing argument regarding the merits of parametric and nonparametric techniques will not be settled in this study. The use of regression techniques can be justified simply because there are no nonparametric

\[ 9 = E_{1i}E_{2i}E_{3i}(I_iV_j) \]
\[ 10 = IAV_i \]

17 See Gaito (1959), Anderson (1961), and Stevens (1968) for an introduction to the controversy.
techniques capable of performing a similar analysis. Also, regression techniques are robust with respect to violations of assumptions (Bogrenstedt and Carter, 1971). Since violation of the strict assumptions of parametric procedures is the common justification for using nonparametric techniques, the robustness of regression techniques minimizes the need for nonparametric analysis. The techniques used to examine hypotheses 4, 5, 6, 7 and 8 are limited to Spearman rank order correlations and Mann-Whitney U tests. Both of these methods are nonparametric procedures.

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18A nonmetric regression technique has recently been developed by Young et al. (1975). However, to date, this technique has not been used in the applied psychological literature. Given the early stage of development, this technique is not considered appropriate for use in this study.
CHAPTER V
RESEARCH RESULTS

This chapter analyzes and interprets data relevant to the hypotheses developed in chapter IV. In some cases the analysis of one hypothesis sheds additional light on another hypothesis. The final section of this chapter summarizes the research findings and integrates the research results.

Hypothesis One

Hypothesis one stated:

The amount of effort audit seniors direct toward activities related to an evaluation dimension can be predicted from the model

\[ W_i = f \left( E_{1i} \cdot E_{2i} \cdot E_{3i} \left( \sum_{j=1}^{n} I_{ij} \cdot V_j \right) + IAV_i \right). \]

This hypothesis was examined using multiple regression. Two multiple regressions were performed: one using the absolute amount of time spent on an evaluation dimension as a dependent variable and one using the relative amount of time spent on an evaluation dimension as a dependent variable. The analysis indicates that the regression formulation of the evaluation model of directed job effort is able to account for a significant percentage of variance (See Table 15). This is correct when effort is conceived as the absolute amount of time spent on an evaluation dimension and when 105.
TABLE 15
PREDICTION OF EFFORT USING THE EVALUATION MODEL OF DIRECTED JOB EFFORT

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Independent Variables</th>
<th>Significance Level of Beta</th>
<th>Number of Observations</th>
<th>R</th>
<th>Significance Level of R</th>
</tr>
</thead>
<tbody>
<tr>
<td>( T_{ai} ) (absolute amount of time) ( E_{1i} \cdot E_{2i} \cdot E_{3i} \left( \sum_{j=1}^{n} I_j V_j \right) ) ( IAV_i )</td>
<td>( p &lt; .01 )</td>
<td>( 295(*) )</td>
<td>.54</td>
<td>( p &lt; .01 )</td>
<td></td>
</tr>
<tr>
<td>( T_{ri} ) (relative amount of time) ( E_{1i} \cdot E_{2i} \cdot E_{3i} \left( \sum_{j=1}^{n} I_j V_j \right) ) ( IAV_i )</td>
<td>( p &lt; .01 )</td>
<td>( 295 )</td>
<td>.50</td>
<td>( p &lt; .01 )</td>
<td></td>
</tr>
</tbody>
</table>

* Note - Differences between number of observations used in multiple regression and the number of observations implied by questionnaires returned (33 x 9 = 297) are due to incomplete responses.
effort is conceived as the relative amount of time spent on an evaluation dimension.

The levels of multiple correlation obtained in the two regression models (.54 and .50) compare favorably with reported correlations in expectancy studies using the job effort model. In more than 20 studies reviewed by Mitchell (1974) the average correlation coefficient was .29.

In addition to testing the significance of the multiple correlation coefficient, the beta coefficients of the independent variables were also tested for significance. The null hypothesis that the beta coefficients are equal to zero was rejected (p < .05). This implies that both variables in the evaluation model of directed job effort are useful predictors of job effort. The analysis indicates substantial support for hypothesis one. However, as indicated at the start of the chapter, tests of other hypotheses may shed additional light on this hypothesis. Further discussion relating to hypothesis one will follow these additional tests.

**Hypothesis Two**

Hypothesis two stated:

The model $W_i = f(E_1i \cdot E_{2i} \cdot E_{3i} \cdot \sum_{i=1}^{n} I_j V_j + IAV_i)$ can predict audit seniors' self-rated effort better than self-rated performance, manager rated performance or assistant rated performance.
This hypothesis was examined using multiple regression. Five multiple regression equations were formed. The first three used self-rated absolute amount of time, self-rated relative amount of time and self-rated performance as dependent variables. The fourth and fifth equations used assistant and manager rated performance. Hypothesis two would be supported if the multiple correlation coefficients for the regressions using self-rated absolute and relative time were greater than the multiple correlation coefficients for the regressions using self-rated, manager rated and assistant rated performance. Table 16 presents the results of the analysis.

In general, the hypothesis is supported. The model does predict self-rated effort (time) better than self-rated, manager rated or assistant rated performance (.54 and .50 vs. .48, .26, .31). Although, the model predicts self-rated effort better than self-rated performance as suggested by the hypothesis, the difference in predictive accuracy is quite small. This is surprising from the standpoint that performance is thought to be a function of effort and ability. However, as pointed out earlier, if most of the subjects under study have similar abilities then performance should be almost as predictable as effort.

The difference between the ability of the model to account for self-rated effort and manager and assistant rated performance was substantial. Although this supports
TABLE 16
DIFFERENCES IN PREDICTIVE ACCURACY FOR SENIOR, MANAGER AND ASSISTANT RATINGS

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Independent Variables</th>
<th>Significance Level of Beta</th>
<th>Number of Observations</th>
<th>R</th>
<th>Significance Level of R</th>
</tr>
</thead>
<tbody>
<tr>
<td>$T_{ai}$ (absolute amount of time)</td>
<td>$E_{1i} \cdot E_{2i} \cdot E_{3i} \left( \sum_{j=1}^{n} I_{j} V_{j} \right)$</td>
<td>p &lt; .01</td>
<td>295</td>
<td>.54</td>
<td>p &lt; .01</td>
</tr>
<tr>
<td></td>
<td>$IAV_i$</td>
<td>p &lt; .01</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$T_{ri}$ (relative amount of time)</td>
<td>$E_{1i} \cdot E_{2i} \cdot E_{3i} \left( \sum_{j=1}^{n} I_{j} V_{j} \right)$</td>
<td>p &lt; .03</td>
<td>295</td>
<td>.50</td>
<td>p &lt; .01</td>
</tr>
<tr>
<td></td>
<td>$IAV_i$</td>
<td>p &lt; .01</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$SP_i$ (self rated performance)</td>
<td>$E_{1i} \cdot E_{2i} \cdot E_{3i} \left( \sum_{j=1}^{n} I_{j} V_{j} \right)$</td>
<td>p &lt; .01</td>
<td>292</td>
<td>.48</td>
<td>p &lt; .01</td>
</tr>
<tr>
<td></td>
<td>$IAV_i$</td>
<td>p &lt; .01</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$AP_i$ (assistant rated performance)</td>
<td>$E_{1i} \cdot E_{2i} \cdot E_{3i} \left( \sum_{j=1}^{n} I_{j} V_{j} \right)$</td>
<td>p &lt; .01</td>
<td>241</td>
<td>.26</td>
<td>p &lt; .01</td>
</tr>
<tr>
<td></td>
<td>$IAV_i$</td>
<td>p &lt; .79</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$MP_i$ (manager rated performance)</td>
<td>$E_{1i} \cdot E_{2i} \cdot E_{3i} \left( \sum_{j=1}^{n} I_{j} V_{j} \right)$</td>
<td>p &lt; .01</td>
<td>286</td>
<td>.31</td>
<td>p &lt; .01</td>
</tr>
<tr>
<td></td>
<td>$IAV_i$</td>
<td>p &lt; .34</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
the hypothesis, it raises the question: "Why does the model predict self-rated performance better than manager or assistant rated performance?"

The multidimension-multirater analysis in Chapter IV indicated little convergent validity of performance ratings by seniors, managers and assistants. This suggests these individuals are seeing different, though not necessarily invalid, aspects of performance on each dimension. The measures of the model variables are based upon seniors' perceptions; perceptions incorporating their unique view of the important aspects of each evaluation dimension. Therefore, it is reasonable to expect the model to make more accurate predictions of self-rated performance.

An alternative explanation for the results can also be given. Recall that the correlations in the monorater-multidimension triangles (the solid triangles in the multidimension-multirater matrix) measure the halo error of performance ratings. The mean correlation for seniors was .28 while the mean correlations for managers and assistants were .53 and .37. Therefore, the ratings by seniors are less affected by this source of rater bias and, in this sense, are more valid. Logically, the model should more accurately predict the more valid measure of performance.

Table 15 also indicates the usefulness of model variables in predicting effort and performance. Both variables
included in the model had beta coefficients significantly greater than zero when the dependent variables were self-rated effort and performance. This indicates that both variables are useful predictors of effort and performance. But, when manager and assistant rated performance were used as dependent variables, the intrinsic activity value variable was not found to be a useful predictor. Those aspects of performance rated by managers and assistants are not related to seniors' intrinsic motivation to exert effort.

**Hypothesis Three**

Hypothesis three stated:

The amount of effort audit seniors direct toward activities related to an evaluation dimension and their performance on the dimensions can be better predicted from a multiplicative combination of expectancies,

\[ E_{1i} \cdot E_{2i} \cdot E_{3i} \cdot (\sum_{j=1}^{n} I_{j}V_{j}) + IAV_{i} \]

than from an additive combination of these terms

\[ E_{1i} + E_{2i} + E_{3i} + (\sum_{j=1}^{n} I_{j}V_{j}) + IAV_{i} \].

Table 16 presented results of regression analyses using the multiplicative combination of expectancies, instrumentalities, and valences. Similar results are presented in Table 17 for the additive combination of expectancies, instrumentalities and valences. Comparing the multiple correlation coefficients in these two tables indicates that the additive model out performed the multiplicative model in every case except when audit manager ratings of performance were used
as the dependent variable.

The predictive ability of the additive model is not surprising. Research by Dawes and Corrigan (1974) has indicated that linear (additive) models accurately predict various dependent variables even when the process underlying the relationship between the independent and the dependent variables is not linear. Dawes and Corrigan (1974) list two conditions under which an additive model will effectively predict various dependent variables: (1) each independent variable has a conditionally monotone relationship to the dependent variable and (2) there is error in the measure of the independent variables. An inspection of the evaluation model suggests that each variable has a conditionally monotone relationship to time spent on evaluation dimensions and it is more than likely that the measures of the independent variables include an error component.

The results, taken at face value, do not support the third hypothesis. However, consider the differences in predictive power. In no case is the difference in R greater than .07. Since both models are approximately equal in terms of predictive power, determination of which model is more appropriate must be made in reference to some other criterion. The analysis and the summary of study results at the end of the chapter will provide additional information regarding the combination of model terms.
Significance tests of beta coefficients also reveal that, in the context of the additive model, some of the variables are not useful predictors of effort or performance (see Table 17). The beta coefficient of $E_{3i}$ was not significant in any of the five regression models. The coefficient of $\left( \prod_{j=1}^{n} I_j V_j \right)$ was significant ($p < .05$) in only one regression equation while the coefficient of $E_{2i}$ was significant ($p < .05$) in only two regression equations.

Usefulness of Variables and Combinations of Variables in Predicting Job Effort and Performance

The analysis of the first three hypotheses has yielded conflicting results. The evaluation model, as developed earlier in the paper (i.e., the multiplicative combination of expectancies, instrumentalities and valences), did a fairly good job of accounting for self-rated effort and performance. As hypothesized, it accounted less adequately for assistant or manager rated performance. Also, the measure of intrinsic activity value which was a useful predictor of self-rated effort and performance was not an adequate predictor of assistant or manager rated performance. Furthermore, an additive combination of
TABLE 17

PREDICTIVE ACCURACY USING AN ADDITIVE MODEL

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Independent Variables</th>
<th>Significance Level of Beta</th>
<th>Number of Observations</th>
<th>R</th>
<th>Significance Level of R</th>
</tr>
</thead>
<tbody>
<tr>
<td>( T_{ai} ) (absolute amount of time)</td>
<td>( E_{li} )</td>
<td>( p &lt; .01 )</td>
<td>295</td>
<td>.57</td>
<td>( p &lt; .01 )</td>
</tr>
<tr>
<td></td>
<td>( E_{2i} )</td>
<td>( p &lt; .06 )</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>( E_{3i} )</td>
<td>( p &lt; .08 )</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>( \sum_{j=1}^{n} \ I_j V_j )</td>
<td>( p &lt; .64 )</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>( IAV_i )</td>
<td>( p &lt; .01 )</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>( T_{ri} ) (relative amount of time)</td>
<td>( E_{li} )</td>
<td>( p &lt; .01 )</td>
<td>295</td>
<td>.51</td>
<td>( p &lt; .01 )</td>
</tr>
<tr>
<td></td>
<td>( E_{2i} )</td>
<td>( p &lt; .26 )</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>( E_{3i} )</td>
<td>( p &lt; .59 )</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>( \sum_{j=1}^{n} \ I_j V_j )</td>
<td>( p &lt; .98 )</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>( IAV_i )</td>
<td>( p &lt; .01 )</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>( S_{pi} ) (self rated performance)</td>
<td>( E_{li} )</td>
<td>( p &lt; .01 )</td>
<td>292</td>
<td>.53</td>
<td>( p &lt; .01 )</td>
</tr>
<tr>
<td></td>
<td>( E_{2i} )</td>
<td>( p &lt; .01 )</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>( E_{3i} )</td>
<td>( p &lt; .60 )</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>( \sum_{j=1}^{n} \ I_j V_j )</td>
<td>( p &lt; .47 )</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>( IAV_i )</td>
<td>( p &lt; .01 )</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TABLE 17 (continued)

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Independent Variables</th>
<th>Significance Level of Beta</th>
<th>Number of Observations</th>
<th>Significance Level of R</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP&lt;sub&gt;i&lt;/sub&gt; (assistant rated performance)</td>
<td>E&lt;sub&gt;1i&lt;/sub&gt;</td>
<td>p &lt; .01</td>
<td>241</td>
<td>.33</td>
</tr>
<tr>
<td></td>
<td>E&lt;sub&gt;2i&lt;/sub&gt;</td>
<td>p &lt; .16</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>E&lt;sub&gt;3i&lt;/sub&gt;</td>
<td>p &lt; .40</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(\sum_{j=1}^{n} I_j V_j)</td>
<td>p &lt; .14</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>IAV&lt;sub&gt;i&lt;/sub&gt;</td>
<td>p &lt; .45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MP&lt;sub&gt;i&lt;/sub&gt; (manager rated performance)</td>
<td>E&lt;sub&gt;1i&lt;/sub&gt;</td>
<td>p &lt; .67</td>
<td>286</td>
<td>.30</td>
</tr>
<tr>
<td></td>
<td>E&lt;sub&gt;2i&lt;/sub&gt;</td>
<td>p &lt; .03</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>E&lt;sub&gt;3i&lt;/sub&gt;</td>
<td>p &lt; .09</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(\sum_{j=1}^{n} I_j V_j)</td>
<td>p &lt; .00</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>IAV&lt;sub&gt;i&lt;/sub&gt;</td>
<td>p &lt; .59</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
expectancies, instrumentalities, valences and the intrinsic activity value was as adequate in accounting for effort and performance as the evaluation model of directed job effort developed in the study. In order to gain additional insight into these results, five stepwise regression models are analyzed; one for each of the five dependent variables. The dependent and independent variables utilized in these stepwise regressions are listed in Table 18. This analysis will provide additional information on the usefulness of the independent variables and it will provide additional insight into the appropriateness of the multiplicative and additive combination of expectancies, instrumentalities and valences. The usefulness of model variables is indicated in two ways. First, if a variable does not enter into the stepwise regression equation it is not considered to be a useful predictor. Second, if a variable does enter into the stepwise regression equation, the size of the partial F statistic gives some idea of the variable's relative usefulness. This statistic is used to test the increase in multiple correlation due solely to the inclusion of an individual variable in the stepwise regression equation. A significance level of .05 was required of any variable entering the stepwise regression equations.
<table>
<thead>
<tr>
<th>Dependent Variables</th>
<th>Independent Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>$T_{ai}$ - absolute amount of time.</td>
<td>$E_{1i}$ - expectancy linking effort and performance.</td>
</tr>
<tr>
<td>$T_{ri}$ - relative amount of time</td>
<td>$E_{2i}$ - expectancy linking performance and evaluated performance.</td>
</tr>
<tr>
<td>$SP_i$ - self-rated performance.</td>
<td>$E_{3i}$ - expectancy linking evaluated performance and overall evaluation.</td>
</tr>
<tr>
<td>$AP_i$ - assistant rated performance.</td>
<td>$n \sum_{j=1}^{n} (I_j V_j)$ - sum of products of instrumentalities and valences.</td>
</tr>
<tr>
<td>$MP_i$ - manager rated performance.</td>
<td>$IAV_i$ - intrinsic activity value.</td>
</tr>
</tbody>
</table>

\[ E_{1i} \cdot E_{2i} \]
\[ E_{1i} \cdot E_{3i} \]
\[ E_{2i} \cdot E_{3i} \]
\[ E_{1i} \cdot E_{2i} \cdot E_{3i} \]
\[ E_{1i} \cdot E_{2i} \cdot E_{3i} (\sum_{j=1}^{n} I_j V_j) \]
Insight into whether an additive or a multiplicative combination of terms is more appropriate is gained by examining which combinations of the model variables enter the stepwise regression models. Support for the additive combination would exist if variables \( E_{1i}, E_{2i}, E_{3i}, (\sum_{j=1}^{n} I_j V_j) \), and \( IAV_i \) entered into the stepwise regression model. Support for the multiplicative combination would exist if variables \( E_{1i} \cdot E_{2i} \cdot E_{3i} (\sum_{j=1}^{n} I_j V_j) \) and \( IAV_i \) entered into the stepwise regression model. Partial support of both models is also possible. As indicated in the list of independent variables in Table 18, other combinations are possible (e.g., \( E_{1i} \cdot E_{2i} \)).

Table 19 presents the results of the five stepwise regressions. The most surprising finding is that the multiple correlation coefficients of all five stepwise models are almost identical to the multiple correlation coefficients obtained for the regressions using the multiplicative and the additive versions of the evaluation model of directed job effort. The stepwise regressions using self-rated effort and performance indicate that the intrinsic activity value is the most useful predictor of job effort and performance. The partial F statistic associated with this variable is the largest for both measures of self-rated effort (absolute and relative time) and for self-rated performance. The other systematic finding is that the sum of the products of instrumentalities and valences \( (\sum_{j=1}^{n} I_j V_j) \) does not appear...
<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Number of Observations</th>
<th>R</th>
<th>Significance Level of R</th>
<th>Independent Variables included in stepwise Regression Model</th>
<th>F</th>
<th>Significance Level of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>$T_{ai}$</td>
<td>295</td>
<td>.57</td>
<td>p &lt; .01</td>
<td>$E_{1i}$, $E_{2i}$, $E_{3i}$, IAV$_i$</td>
<td>33.13</td>
<td>p &lt; .01</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>48.99</td>
<td>p &lt; .01</td>
</tr>
<tr>
<td>$T_{ri}$</td>
<td>295</td>
<td>.51</td>
<td>p &lt; .01</td>
<td>$E_{1i} \cdot E_{2i}$, IAV$_i$</td>
<td>10.22</td>
<td>p &lt; .01</td>
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<td></td>
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<td></td>
<td>64.14</td>
<td>p &lt; .01</td>
</tr>
<tr>
<td>$SP_i$</td>
<td>292</td>
<td>.55</td>
<td>p &lt; .01</td>
<td>$E_{1i}$, $E_{3i}$, $E_{2i} \cdot E_{3i}$, IAV$_i$</td>
<td>5.87</td>
<td>p &lt; .01</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9.54</td>
<td>p &lt; .01</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>24.26</td>
<td>p &lt; .01</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>33.77</td>
<td>p &lt; .01</td>
</tr>
<tr>
<td>$AP_i$</td>
<td>241</td>
<td>.30</td>
<td>p &lt; .01</td>
<td>$E_{1i} \cdot E_{2i}$</td>
<td>24.29</td>
<td>p &lt; .01</td>
</tr>
<tr>
<td>$MP_i$</td>
<td>286</td>
<td>.31</td>
<td>p &lt; .01</td>
<td>$E_{1i} \cdot E_{2i} \cdot E_{3i} (j \neq 1, I_j V_j)$</td>
<td>29.56</td>
<td>p &lt; .01</td>
</tr>
</tbody>
</table>
to be a useful predictor of effort or performance (i.e., it did not enter into the stepwise regression models).

The stepwise model using the absolute amount of time directed toward an evaluation dimension as a dependent variable provides significant support for the evaluation model of directed job effort developed in this study. The only difference is that the product of the expectancies is weighted by $\sum_{j=1}^{n} (I_j V_j)$ in the evaluation model while only the unweighted product of the three expectancies entered as a predictor variable in the stepwise regression. In addition to being the stepwise regression model most similar to the evaluation model of directed job effort, this stepwise regression model had the highest multiple correlation coefficient.

When the dependent variables are the relative amount of time spent on evaluation dimensions and self-rated performance there is less support for the evaluation model of directed job effort. But the importance of the multiplicative combination of expectancy terms is partially supported when $E_{1i} \cdot E_{2i}$ is included in the stepwise model using self-rated performance. When self-rated performance was used as the dependent variable, $E_{1i}$ and $E_{3i}$ entered into the stepwise model as additive terms. However, the relative size of the partial $F$ statistics for these variables is much less than the partial $F$ statistics for $E_{2i} \cdot E_{3i}$ and for $IAV_i$. 
The analysis of the two stepwise regressions using assistant and manager rated performance as dependent variables yields two interesting results. First, the intrinsic activity value variable was not a significant predictor variable in either stepwise model, in contrast to the results of the three stepwise models using self-rated effort and performance as dependent variables. In these stepwise models, the intrinsic activity value was clearly the most useful predictor variable. In the discussion of the validity of dependent variables in Chapter IV seniors, managers and assistants were described as seeing different though valid aspects of performance in the same dimension. If this is correct, different perceptions (used as independent variables) will be differentially useful in predicting these alternative dependent variables. Thus, one interpretation of the finding regarding the intrinsic activity value is that the intrinsic value of work behavior is an important determinant of effort and performance as effort and performance are conceived by audit seniors. However, the intrinsic value of work activity is not an important determinant of performance as conceived by audit managers and audit assistants.

The second result is the significant support for the multiplicative combination of expectancies, instrumentalities and valences provided by the stepwise regression using audit managers ratings of performance as the dependent
variable. The only variable found to be a significant predictor in this analysis was $E_{1i} \cdot E_{2i} \cdot E_{3i} (\sum_{j=1}^{n} I_j V_j)_{i}$, which is the first and most complex term of the evaluation model of directed job effort.

**Hypothesis Four**

Hypothesis four stated:

Audit senior perceptions of how often performance is properly evaluated ($E_{2i}$) by audit managers are significantly different from audit manager perceptions of how often they properly evaluate performance.

This hypothesis was tested by comparing the distributions of responses of audit seniors to the question measuring how often their performance is properly rated to the distribution of responses of audit managers to the question measuring how often they felt they properly rated performance. A Mann-Whitney U test was performed to test the equality of the two distributions. The results of the analysis are presented in Table 20. If the perceptions of audit seniors are similar to the perceptions of audit managers, this supports the conclusion that audit seniors are accurately perceiving this aspect of the evaluation environment. This idea is based on the concept of convergent validity discussed in Chapter IV. Of course, possibly both groups of individuals are misperceiving the audit environment in a similar manner. This is considered to be unlikely.
<table>
<thead>
<tr>
<th>Evaluation Dimension</th>
<th>Mean Seniors n=33</th>
<th>Std. Dev.</th>
<th>Mean Managers n=25</th>
<th>Std. Dev.</th>
<th>Significance Between Groups (2-tailed Mann-Whitney U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Understanding accounting principles, auditing standards and firm technical releases.</td>
<td>5.39 0.95</td>
<td>5.72 0.72</td>
<td>p &lt; .17</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2) Planning audit work.</td>
<td>5.15 1.02</td>
<td>5.20 0.84</td>
<td>p &lt; .85</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(3) Promoting additional services to current clients.</td>
<td>4.67 1.15</td>
<td>3.68 1.22</td>
<td>p &lt; .01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(4) Revising audit programs.</td>
<td>4.82 1.22</td>
<td>4.96 0.92</td>
<td>p &lt; .79</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(5) Providing appropriate on-the-job training of assistants.</td>
<td>5.03 1.03</td>
<td>4.44 0.98</td>
<td>p &lt; .03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(6) Recognizing client's significant problems.</td>
<td>5.03 1.19</td>
<td>5.24 1.03</td>
<td>p &lt; .60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(7) Reviewing work of assistants.</td>
<td>4.97 1.31</td>
<td>4.48 1.10</td>
<td>p &lt; .03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(8) Obtaining the cooperation and respect of client's personnel.</td>
<td>5.94 0.85</td>
<td>5.40 0.80</td>
<td>p &lt; .01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(9) Demonstrating an area of special competence.</td>
<td>5.18 1.22</td>
<td>5.16 1.01</td>
<td>p &lt; .97</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The analysis indicates significant different perceptions $(p < .05)$ on four evaluation dimensions: (1) promoting additional services to current clients, (2) providing appropriate on the job training of assistants, (3) reviewing work of assistants and (4) obtaining the cooperation and respect of client's personnel. On each of these dimensions, seniors perceived a greater likelihood of receiving a proper evaluation than managers perceived themselves as providing. Also, neither audit seniors or audit managers had much confidence that performance on a particular dimension would be accurately evaluated. The question measuring the likelihood of a proper evaluation utilized a seven point scale with verbal anchors of never (1), sometimes (4) and always (7). The mean responses are sufficiently low to indicate that problems in evaluation exist.

**Hypothesis Five**

Hypothesis five stated:

Audit senior perceptions of the importance attached to evaluation dimensions by audit partners in reaching overall evaluations are significantly different from audit partner perceptions of the importance they attach to the evaluation dimensions.

This hypothesis was tested by comparing the distribution of responses of audit seniors regarding importance $(E_{3i})$ to the distribution of responses of audit partners to the question measuring the importance they attach to evaluation dimensions in reaching overall evaluations. A Mann-Whitney U
test was used to compare the two distributions. The results of the analysis is presented in Table 21.

Significant differences ($p < .05$) exist for four evaluation dimensions: (1) promoting additional services to current clients, (2) revising audit programs, (3) obtaining the cooperation and respect of client's personnel and (4) demonstrating an area of special competence. Senior accountants overestimated the importance partners attach to promoting additional services, obtaining client's cooperation and demonstrating special competence. However, they underestimated the importance partners attach to revising audit programs.

**Hypothesis Six**

Hypothesis six stated:

Audit seniors' perceptions of how often performance is properly evaluated ($E_{2i}$) are significantly related to their satisfaction with the evaluation of performance. The relationship is such that as audit seniors perceive that a proper evaluation is more likely, they are more satisfied with the evaluation of performance.

Each senior accountant had answered a question measuring how often he felt his performance was properly evaluated ($E_{2i}$). This question was asked for each of the 9 evaluation dimensions. In addition, each senior answered a question measuring how satisfied he was with the evaluation of his performance by audit managers (SM). The sum of the 9 measures of $E_{2i}$ was correlated across seniors with the measure of SM.
<table>
<thead>
<tr>
<th>Evaluation Dimension</th>
<th>Mean Seniors n=33</th>
<th>Std. Dev.</th>
<th>Mean Partners n=17</th>
<th>Std. Dev.</th>
<th>Significance Between Groups (2-tailed Mann-Whitney U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understanding accounting principles, auditing standards and firm technical releases.</td>
<td>5.51 .87</td>
<td></td>
<td>5.59 1.46</td>
<td></td>
<td>p &lt; .44</td>
</tr>
<tr>
<td>Planning audit work.</td>
<td>4.51 1.06</td>
<td></td>
<td>4.88 1.17</td>
<td></td>
<td>p &lt; .23</td>
</tr>
<tr>
<td>Promoting additional services to current clients.</td>
<td>3.97 1.38</td>
<td></td>
<td>2.65 1.00</td>
<td></td>
<td>p &lt; .01</td>
</tr>
<tr>
<td>Revising audit programs.</td>
<td>3.91 1.15</td>
<td></td>
<td>4.88 1.17</td>
<td></td>
<td>p &lt; .01</td>
</tr>
<tr>
<td>Providing appropriate on-the-job training of assistants.</td>
<td>4.97 1.26</td>
<td></td>
<td>5.35 1.17</td>
<td></td>
<td>p &lt; .45</td>
</tr>
<tr>
<td>Recognizing client's significant problems.</td>
<td>5.06 1.48</td>
<td></td>
<td>5.23 .97</td>
<td></td>
<td>p &lt; .97</td>
</tr>
<tr>
<td>Reviewing work of assistants.</td>
<td>4.24 1.06</td>
<td></td>
<td>4.94 1.20</td>
<td></td>
<td>p &lt; .09</td>
</tr>
<tr>
<td>Obtaining the cooperation and respect of client's personnel.</td>
<td>5.51 1.17</td>
<td></td>
<td>4.64 1.17</td>
<td></td>
<td>p &lt; .01</td>
</tr>
<tr>
<td>Demonstrating an area of special competence.</td>
<td>5.03 1.26</td>
<td></td>
<td>3.94 1.25</td>
<td></td>
<td>p &lt; .01</td>
</tr>
</tbody>
</table>
The Spearman correlation coefficient was .66 which is significant \((p < .01)\). This implies that perceptions with respect to the accuracy of evaluation on particular dimensions \((E_{2i})\) are associated with general feelings of satisfaction regarding the evaluation of performance. The mean response of seniors to the question measuring SM was 5.34. This average indicates that seniors are neither very dissatisfied with the way their performance is evaluated by managers nor are they quite satisfied.

**Hypothesis Seven**

Hypothesis seven stated:

The differences between audit senior perceptions of the importance attached to evaluation dimensions by audit partners \((E_{3i})\) and the importance audit seniors feel should be attached to evaluation dimensions are significantly related to satisfaction with the evaluation of performance. The relationship is such that as the differences become smaller, satisfaction is expected to increase.

Each senior accountant answered a question measuring how important he perceived each evaluation dimension to be \((E_{3i})\) and a question measuring how important he felt each evaluation dimension should be \((D_{1i})\). These questions were asked for each of the nine evaluation dimensions. In addition, each senior answered a question measuring how satisfied he was with the way the data reported on the staff evaluation reports were used by partners in arriving at overall
evaluations (SP). The sum of the absolute values of the differences between $E_{3i}$ and $D_{1i}$ were correlated across seniors with the measure of SP. The spearman correlation coefficient was -.26 which was not significant. This implies that the differences between perceived and desired weights attached to evaluation dimensions are not associated with general feelings of satisfaction regarding partners' use of evaluation reports. But, the mean response to the measure of SP was 4.64 which indicates that seniors are not enthusiastic about how partners use evaluation reports to arrive at overall evaluations.

**Hypothesis Eight**

Hypothesis eight stated:

The amount of effort audit seniors direct toward each evaluation dimension is significantly different from the amount of effort audit partners desire to be directed toward each evaluation dimension.

Each senior accountant answered a question measuring the absolute amount of time he directed toward each evaluation dimension ($T_{ai}$). In addition, each partner answered a question measuring the absolute amount of time he felt should be directed toward each evaluation dimension ($PT_{i}$). These questions were asked for each of the nine evaluation dimensions. The distributions of responses for seniors and partners were compared using a Mann-Whitney U test. The results are presented in Table 22.
<table>
<thead>
<tr>
<th>Evaluation Dimension</th>
<th>Mean Seniors n=33</th>
<th>Std. Dev.</th>
<th>Mean Partners n=17</th>
<th>Std. Dev.</th>
<th>Significance Between Groups (2-tailed Mann-Whitney U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Understanding accounting principles, auditing standards and firm technical releases.</td>
<td>4.24 1.37</td>
<td></td>
<td>5.23 1.31</td>
<td></td>
<td>p &lt; .02</td>
</tr>
<tr>
<td>(2) Planning audit work.</td>
<td>4.88 1.06</td>
<td></td>
<td>4.76 1.31</td>
<td></td>
<td>p &lt; .52</td>
</tr>
<tr>
<td>(3) Promoting additional services to current clients.</td>
<td>2.82 1.11</td>
<td></td>
<td>2.53 .98</td>
<td></td>
<td>p &lt; .35</td>
</tr>
<tr>
<td>(4) Revising audit programs.</td>
<td>4.58 .95</td>
<td></td>
<td>4.18 1.20</td>
<td></td>
<td>p &lt; .12</td>
</tr>
<tr>
<td>(5) Providing appropriate on-the-job training of assistants.</td>
<td>5.36 .98</td>
<td></td>
<td>5.12 1.13</td>
<td></td>
<td>p &lt; .54</td>
</tr>
<tr>
<td>(6) Recognizing client's significant problems.</td>
<td>4.51 1.21</td>
<td></td>
<td>4.71 1.12</td>
<td></td>
<td>p &lt; .47</td>
</tr>
<tr>
<td>(7) Reviewing work of assistants.</td>
<td>5.09 1.26</td>
<td></td>
<td>5.12 1.08</td>
<td></td>
<td>p &lt; .96</td>
</tr>
<tr>
<td>(8) Obtaining the cooperation and respect of client's personnel.</td>
<td>5.03 1.19</td>
<td></td>
<td>3.88 1.37</td>
<td></td>
<td>p &lt; .01</td>
</tr>
<tr>
<td>(9) Demonstrating an area of special competence.</td>
<td>4.42 1.56</td>
<td></td>
<td>3.71 1.18</td>
<td></td>
<td>p &lt; .06</td>
</tr>
</tbody>
</table>
Overall, the results indicate that the amount of effort seniors direct toward the various evaluation dimensions is consistent with the desires of audit partners. However, for two evaluation dimensions, significant differences (p < .05) exist: (1) understanding accounting principles and (2) obtaining the cooperation and respect of client's personnel. With respect to understanding accounting principles, seniors indicated they were spending less time than the time audit partners indicated as appropriate. With respect to obtaining the cooperation and respect of client's personnel, seniors indicated that they were spending more time than the time audit partners indicated as appropriate. Although not significant at p < .05, the difference on the dimension "demonstrating an area of special competence" was substantial. On this dimension, seniors indicated that they spend more time than the time audit partners indicated as appropriate.

The implication of the findings is that, in general, job effort is not being misdirected. The amount of time seniors direct toward the evaluation dimensions is consistent with the amount of time audit partners desire to be directed. These findings also imply that the evaluation system is not causing job effort to be misdirected.
Summary and Integration of Research Results

As indicated at the start of this chapter, in some cases the analysis of one hypothesis sheds additional light on another hypothesis. This section will summarize and integrate the research findings.

The major finding of the study is that the evaluation model of directed job effort is able to account for a significant percentage of criterion variance for each of five criteria: (1) self-rated absolute time spent on evaluation dimensions, (2) self-rated relative time spent on evaluation dimensions, (3) self-rated performance on evaluation dimensions, (4) assistant rated performance on evaluation dimensions, and (5) manager rated performance on evaluation dimensions. The model was especially useful in accounting for self-rated absolute time, self-rated relative time and self-rated performance.

The evaluation model of directed job effort specifies a multiplicative combination of expectancies, instrumentalities and valences. In investigating the appropriateness of this combination, an additive model was also used to predict the five criteria. Virtually identical percentages of variance were accounted for by the additive and the multiplicative models. Due to this surprising finding, a stepwise regression model was formed for each of the five criteria. Included in the pool of potential predictor variables were various combinations of the variables included in the...
evaluation model of directed job effort. These combinations were such that support could be found for the multiplicative model, the additive model or some combination of the two. Overall, the results of this analysis supported the multiplicative combination of expectancies, instrumentalities and valences. Again, virtually identical percentages of variance were accounted for by the stepwise models as compared to the multiplicative and the additive models.

All of these models (i.e., the multiplicative, the additive, and the stepwise models) are what Hoffman (1960) would describe as "paramorphic" representations of the process directing job effort since they are mathematical models which predict behavior given a set of perceptions. By functionally relating perception and behavior they provide a paramorphic representation of a process. As this study points out, several different models may be equally useful in predicting behavior. Therefore, the choice among paramorphic representations must be made utilizing some other criterion. An obvious approach would be to chose the model which is supported by theoretical development. The evaluation model of directed job effort (the multiplicative model) was developed from an analysis of the evaluation process and in the context of an expectancy theory of motivation. The overall development and analysis of this study supports the evaluation model of directed job effort.
The analysis also investigated the usefulness of the model variables in predicting job effort and performance. Overall, both terms included in the model are useful predictors of effort and performance. The intrinsic activity value proved to be the most useful predictor of self-rated effort and performance, which is consistent with the study by Turney (1974). However, this variable was not a useful predictor of manager or assistant rated performance.

Two perceptions of the evaluation environment were singled out for special attention: (1) the expectancy that performance is properly rated \(E_{2i}\), and (2) the expectancy that an evaluation dimension is important to partners in making overall evaluations \(E_{3i}\). On five of the nine evaluation dimensions the expectancy of seniors that performance is properly rated \(E_{2i}\) were similar to the perceptions of audit managers on how well they are able to rate performance. This implies that seniors have some difficulty in perceiving this aspect of the evaluation environment. In addition to its importance as a variable affecting motivation and performance, \(E_{2i}\) is also related to general feelings of satisfaction with the evaluation of performance. Since the variable has rather low mean scores, CPA firms should strive to more properly evaluate performance on the evaluation dimensions.

On five of the nine evaluation dimensions, the expectancy of seniors that an evaluation dimension is important
to partners in making overall evaluations \( (E_{3i}) \) were similar to the perceptions of audit partners' regarding the importance of the dimensions. This implies that seniors have some difficulty inferring the relative importance of evaluation dimensions. Greater communication of dimension importance is necessary.

The study also sought to relate the difference between perceived importance \( (E_{3i}) \) and desired importance \( (DI_{i}) \) to general feelings of satisfaction with the use of evaluation reports in overall evaluations. Although the relationship was in the hypothesized direction, this relationship was not statistically significant.

On four of the nine dimensions audit seniors and audit managers had significantly different perceptions of evaluation accuracy. On four of the nine dimensions audit seniors and audit partners also had significantly different perceptions of the importance of the dimensions in determining overall evaluations. Two dimensions were significantly different on both comparisons: (1) promoting additional services to current clients and (2) obtaining the cooperation and respect of client's personnel. On both dimensions, audit seniors perceived a greater likelihood of a proper evaluation than audit managers perceived they could provide. On both dimensions, audit seniors also overestimated the importance of these dimensions to audit partners. Since both dimensions are client related, this finding implies...
that misperceptions of the evaluation environment are especially likely in this area.

The final analysis compared the amount of time audit seniors report they direct toward each evaluation dimension with the amount of time audit partners desire to be directed. Significant differences were noted for two dimensions. A rather large difference was also noted for a third dimension but it was not significant at the p < .05 level. In general, the evaluation system in the CPA firm studied is not causing effort to be misdirected. However, the CPA firm should take steps to reduce the discrepancy on the dimensions where significant differences exist. This is especially important for the dimension "understanding accounting principles, auditing standards and firm technical releases." According to the analysis, audit seniors are not spending as much time in this area as audit partners expect. Since this is the dimension which audit partners rated as most important in determining overall evaluations, this discrepancy is especially important.
Chapter VI
CONCLUSION

This final chapter attempts to summarize the entire study and discuss the study limitations. Detailed findings with respect to specific hypotheses were summarized in the last section of chapter V. This summary will not be repeated. The summary of research findings presented in chapter V was fairly specific in that attention was generally limited to the eight research hypotheses. This chapter extends the analysis by discussing the implications of the research findings for: (1) the evaluation model of directed job effort and (2) the evaluation process in CPA firms. The chapter concludes with some suggestions for future research.

Summary

The primary purpose of this study was to develop and test a model describing how an evaluation system directs job behavior. Chapter 1 indicated the relevance of this type of research for accounting. Even if a CPA possessed the ability to properly plan an audit, properly supervise audit assistants, and properly analyze audit problems, his performance with respect to these behaviors would be low if he was not motivated to engage in these behaviors. Gaining insight into the process by which an evaluation system motivates CPAs to direct time toward various aspects of
their job is a contribution to the accounting literature. The model developed in this study was based upon an analysis of the performance evaluation literature and the performance evaluation practice in CPA firms as well as an analysis of expectancy theory models of motivation. The analysis of the performance evaluation literature and performance evaluation practice in CPA firms undertaken in chapter II delineated important aspects of the evaluation process:

1. Performance is multidimensional.

2. The rating an individual receives on a performance dimension may not correspond to his perceived performance.

3. Performance dimensions are differentially important in determining overall evaluations.

4. Various rewards follow from overall evaluations.

The analysis of expectancy theories of motivation undertaken in chapter III, indicated that effort is a function of several variables:

1. The expectancy that effort leads to a high level of performance.

2. The instrumentality of a high level of performance for various outcomes.

3. The valence of the various outcomes.

4. The intrinsic value of engaging in work behavior.

The evaluation model of directed job effort sought to incorporate both the important aspects of the evaluation process and the important variables identified by expectancy theory. The model developed in the study was:
\[ W_i = f \left( E_{1i} \cdot E_{2i} \cdot E_{3i} \left( \sum_{j=1}^{N} I_j V_j \right) + IAV_i \right) \]

where \( W_i \) = the force to expend a high level of effort on activities related to evaluation dimension \( i \).

\( E_{1i} \) = the expectancy that effort leads to effective performance on evaluation dimension \( i \).

\( E_{2i} \) = the expectancy that being effective on evaluation dimension \( i \) leads to being judged as effective on dimension \( i \) by a superior.

\( E_{3i} \) = the expectancy that being judged effective on evaluation dimension \( i \) contributes to a high overall evaluation of performance.

\( I_j \) = the instrumentality of a high overall evaluation of performance for the attainment of second level outcome \( j \).

\( V_j \) = the valence of second level outcome \( j \).

\( IAV_i \) = the intrinsic value or desirability of engaging in activities related to evaluation dimension \( i \).

The evaluation model of directed job effort differs in three ways from a typical expectancy model:

1. Effort is predicted on specific dimensions.
2. The expectancy that effort leads to a high level of performance is broken down into the three expectancy terms listed above.
3. The model includes a measure of the intrinsic value of effort on a given dimension.

The third chapter also listed a number of hypotheses related to the evaluation model. These hypotheses related to the predictive validity of the evaluation model of directed job effort, the congruence between senior perceptions of the evaluation environment and other firm member
perceptions and the congruence between the amount of time seniors direct toward the performance dimensions and the amount of time partners desire to be directed toward the performance dimensions.

Chapter IV outlined a methodology for investigating the hypotheses. Essentially, four questionnaires were developed to measure the independent and the dependent variables in the evaluation model of directed job effort. Multiple regression and stepwise regression procedures were selected to evaluate the predictive validity of the model and the relative usefulness of model variables.

The results of analyzing the hypotheses were presented in chapter V. Substantial support for the evaluation model of directed job effort was obtained. Overall both terms of the model were found to be useful predictors of effort and performance. Generally, senior perceptions of the evaluation environment were congruent with the perceptions of other firm members implying that senior perceptions reflect actual environmental relationships. Finally, the amount of time seniors spend on performance dimensions is, generally, congruent with the amount of time partners desire to be spent on the dimensions. The evaluation system is not misdirecting the effort of senior accountants.

Study Limitations

Any conclusions drawn from this study are subject to limitations inherent in the study. The survey research
methodology utilized in this study does not allow the researcher to control or manipulate independent and dependent variables so that causal relationships can be determined. Conclusions from survey research studies at best are limited to the presence or absence of association. But, the survey research approach does permit the examination of actual CPAs engaged in real work situations. Further, the limitation with respect to causality is mitigated by the theoretical development of the evaluation model of directed job effort. This theoretical development allows the inference of causality although firm conclusions with respect to causality are still not possible.

A second limitation of this study involves the operationalization of the model variables. Defense of the manner in which the variables were operationalized rests upon: (1) their similarity to the manner in which other studies operationalized the variables and (2) their intuitive sense to the researcher and the participants in the study. Still, the particular manner in which the variables were operationalized cannot be justified in any absolute sense.

The use of multiple regression and stepwise regression techniques is also a limitation of the study. Both of these techniques require interval scale data. The variables in this study were measured on Likert-type scales. Such measures are considered by some authors to be ordinal measures (Kerlinger, 1973). Furthermore, the regression equations
were estimated across subjects and across evaluation dimensions. This violates the independence assumption of regression analysis. The consequences of violating this assumption are unknown.

The external validity or generalizability of this study is also limited. This follows from the limited sample of subjects participating in the study. Only four offices of one large international firm of CPAs participated in the study. Generalization beyond this group requires that the results of the study be replicated for other offices in other CPA firms.

**Implications for the Evaluation Model of Directed Job Effort**

The evaluation model of directed job effort is fairly complex compared to a typical expectancy model of motivation. It predicts effort on performance dimensions instead of overall performance. It also includes three expectancy terms instead of one and combines these expectancies in a complex multiplicative manner. Also, an intrinsic activity value variable is included. Is this additional complexity justified? In terms of predictive validity, the answer is yes. The multiple correlation coefficients reported in this study are substantially higher than most previous reported results. Reviewers of expectancy theory studies are correct in urging that expectancy research develop richer, more
complex models that mirror the complex environments they are used to analyze (Heneman and Schwab, 1972; Turney, 1974).

The evaluation model is also useful for applied analysis of evaluation systems. The implications of this study for the performance evaluation system in the CPA firms studied will be discussed in the next section.

Implications for Performance Evaluation in CPA Firms

The study provides information on the current status of the evaluation system in the CPA firm examined and on ways the evaluation process can be used to direct job effort.

Given the studies limitations (especially the limited sample size), discussion of these topics is somewhat speculative. The intention of this section is not to suggest changing either the evaluation system of the firm studied or other organizations. Such suggestions would be appropriate only after further tests of the model confirmed its validity. But, the analysis does indicate potential problem areas and potential solutions to the problems.

Current Status of Evaluation Process

Overall, the evaluation system in the CPA firm seemed to be functioning effectively. The amount of time seniors spent on the evaluation dimensions was congruent with the amount of time partners desired the seniors to spend implying that the evaluation system is not misdirecting job effort. Also, the senior accountants were satisfied with the evaluations
they received from audit managers. One item on the questionnaire given audit seniors asked "To what extent do you feel you are fairly evaluated by audit managers. Please describe your situation." Almost all seniors responded that they received evaluations which fairly reflected their performance. This contradicts their responses to the question measuring how often they received a proper evaluation on particular dimensions (E2i). These responses, as indicated in Table 20, were fairly low. Since these measures were inversely related to general feelings of satisfaction, this is particularly important. Although seniors feel that on particular dimensions they do not receive a proper evaluation, perhaps they feel that the overall thrust of the evaluation reflects their performance. The following are verbatim quotations of several responses to the question asking how satisfied seniors are with manager evaluations:

"Considering the subjectivity inherent in such a rating process, I feel that my evaluations have been as accurate as can be expected, overall."

"Reasonably fair. The tendency has been to magnify good areas and bad areas alike; i.e. some rating forms are overly complimentary, whereas others dwell on a single 'weak' area and blow it out of proportion."

"Managers give a fair evaluation on an overall basis. The rating is not usually timely and doesn't get into the depth necessary to give you original insight."

"Managers have been extremely fair."

"On an overall basis the evaluations are a fair representation of my performance. Only rarely have I questioned a point raised on an evaluation."
"Too much results oriented instead of techniques used to obtain results. I am good with people at all levels but doesn't have a lot of significance on rating. Basically, I feel I am rated fairly but not on a 'realistic-people oriented' basis or creativity basis."

"Audit manager's overall do a good and fair job of evaluating seniors."

These quotations support the above conclusion.

Audit senior perceptions of the importance partners place on evaluation dimensions were not congruent with the importance partners attribute to the dimensions for the following four dimensions:

(1) Promoting additional services to current clients.
(2) Revising audit programs.
(3) Obtaining the cooperation and respect of client personnel.
(4) Demonstrating an area of special competence.

Assuming the partners were able to articulate the actual weight they place on these dimensions, this finding is relevant for any strategy designed to influence the direction of effort (i.e., an intervention strategy). Simply placing more weight on a dimension in overall evaluations will not necessarily lead to more effort because the senior may not be able to perceive the payoff structure. As the evaluation model of directed job effort indicates, perceptions are the most important determinants of job effort. Apparently, communication between partners and seniors should be improved so that senior perceptions accurately reflect the importance of evaluation dimensions.
### TABLE 23

MEAN RESPONSES TO VALENCE AND INSTRUMENTALITY VARIABLES

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Valence</th>
<th>Instrumentality</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Feeling of accomplishment</td>
<td>2.64</td>
<td>2.00</td>
</tr>
<tr>
<td>(2) Job Pressure</td>
<td>-.79</td>
<td>-.33</td>
</tr>
<tr>
<td>(3) Promotion to manager</td>
<td>2.00</td>
<td>1.88</td>
</tr>
<tr>
<td>(4) Challenging audit assignments</td>
<td>2.21</td>
<td>1.39</td>
</tr>
<tr>
<td>(5) Out of town assignments</td>
<td>-1.43</td>
<td>-.15</td>
</tr>
<tr>
<td>(6) Respect from fellow accountants</td>
<td>1.82</td>
<td>1.00</td>
</tr>
<tr>
<td>(7) Freedom to carry out own ideas</td>
<td>1.73</td>
<td>1.12</td>
</tr>
<tr>
<td>(8) High pay</td>
<td>1.88</td>
<td>1.48</td>
</tr>
<tr>
<td>(9) Overtime</td>
<td>-.70</td>
<td>.21</td>
</tr>
<tr>
<td>(10) Job security</td>
<td>1.39</td>
<td>1.03</td>
</tr>
</tbody>
</table>

*Note - measures were made on 7 point scales ranging from 1 to 7. The measures were transformed to range from -3 to +3.

Table 23 indicates that audit seniors perceive valued rewards as dependent on their overall evaluations. Interestingly, a "feeling of accomplishment" was the most valued reward and the reward perceived as most highly dependent on the overall evaluation. Those outcomes which had a negative
valence were perceived as being less likely to follow from a good overall evaluation. The evaluation system seems to be effectively tied into the reward structure.

**Directing Job Effort**

The evaluation model of directed job effort indicates several ways the job behavior of CPAs can be influenced. Essentially, the perceptions of firm members must be altered. The important perceptions indicated by the evaluation model are $E_{1i}$, $E_{2i}$, $E_{3i}$, and $I_j$. Not included in this list are the valences of job outcomes ($V_j$) or the intrinsic activity value ($IAV_i$). The tastes and preferences of firm members, the determinants of these two variables, are most difficult to modify. Consider Table 24. As noted in a previous analysis, the time seniors devote to obtaining the cooperation and respect of clients' personnel exceeded the time partners consider to be appropriate. In part, this results from the perception of seniors that this dimension is an important determinant of overall evaluations. This is demonstrated by the large mean value for $E_{3i}$ (5.51). This value was significantly different from the mean value partners attribute to this dimension. The model suggests that partners deemphasize this dimension and communicate to seniors that this dimension is less important.

But, consider the dimension "understanding accounting principles, auditing standards and firm technical releases." The time seniors directed toward this dimension was less than
<table>
<thead>
<tr>
<th>Evaluation Dimension</th>
<th>$T_{ai}$</th>
<th>$E_{1i}$</th>
<th>$E_{2i}$</th>
<th>$E_{3i}$</th>
<th>IAV$_{i}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Understanding accounting principles, auditing standards and firm technical releases.</td>
<td>4.24</td>
<td>5.76</td>
<td>5.39</td>
<td>5.51</td>
<td>.78</td>
</tr>
<tr>
<td>(2) Planning audit work.</td>
<td>4.88</td>
<td>5.45</td>
<td>5.15</td>
<td>4.51</td>
<td>1.00</td>
</tr>
<tr>
<td>(3) Promoting additional services to current clients.</td>
<td>2.82</td>
<td>3.82</td>
<td>4.67</td>
<td>3.97</td>
<td>-.10</td>
</tr>
<tr>
<td>(4) Revising audit programs.</td>
<td>4.58</td>
<td>5.03</td>
<td>4.82</td>
<td>3.91</td>
<td>.25</td>
</tr>
<tr>
<td>(5) Providing appropriate on-the-job training of assistants.</td>
<td>5.36</td>
<td>5.73</td>
<td>5.03</td>
<td>4.97</td>
<td>1.64</td>
</tr>
<tr>
<td>(6) Recognizing clients significant problems.</td>
<td>4.51</td>
<td>4.42</td>
<td>5.03</td>
<td>5.06</td>
<td>1.09</td>
</tr>
<tr>
<td>(7) Reviewing work of assistants.</td>
<td>5.09</td>
<td>4.88</td>
<td>4.97</td>
<td>4.24</td>
<td>-.10</td>
</tr>
<tr>
<td>(8) Obtaining the cooperation and respect of client's personnel.</td>
<td>5.03</td>
<td>4.30</td>
<td>5.94</td>
<td>5.51</td>
<td>1.79</td>
</tr>
<tr>
<td>(9) Demonstrating an area of special competence.</td>
<td>4.42</td>
<td>5.36</td>
<td>5.18</td>
<td>5.03</td>
<td>1.06</td>
</tr>
</tbody>
</table>

*Note - all measures were made on 7 point scales ranging from 1 to 7. The measures of IAV$_{i}$ were transformed to range from -3 to +3.*
the amount desired by partners. According to the model, this is not due to senior feelings that they could not perform well ($E_{1i}$), would not be fairly evaluated ($E_{2i}$) or that the dimension is unimportant ($E_{3i}$). The mean perceptions with respect to these variables are equal to or greater than perceptions for any other dimension. However, the intrinsic activity value for this dimension is fairly low. What can firm management do to increase the amount of time directed toward this dimension? They could strive to increase the perceptions of $E_{1i}$, $E_{2i}$, and $E_{3i}$ even more. However, this seems fruitless. Alternatively, they could try to increase the intrinsic value of activities related to this dimension. As noted earlier, changing the tastes and preferences of individuals is a difficult, if not impossible, task. Alternatively, they could hire individuals whose tastes and preferences are such that they would enjoy engaging in activities related to "understanding accounting principles, auditing standards and firm technical releases."

**Suggestions for Future Research**

Several suggestions for additional research are indicated by this study. First, the study needs to be replicated. Replication in other CPA firms would increase the generalizability of the study for the accounting profession. The general model developed in the study would apply to other professional organizations. Replication
of this study in engineering firms, schools or hospitals would demonstrate the generalizability of the model to other professional organizations.

Although the predictions of the evaluation model and the various criteria were significantly related, substantial amounts of variance remain unexplained. The addition of other variables to the model may be able to account for part of this unexplained variance.

One difficulty of the study is that the model predicts effort with respect to evaluation dimensions. Although an attempt was made in the questionnaire instructions to clearly delineate these dimensions, some overlap exists. A future study might predict effort with respect to specific, non-overlapping behaviors. For example, the model might be used to predict the amount of time spent rewriting audit programs for inventory or the time spent revising the internal control questionnaire.

Finally, procedures could be developed to analyze the effect of specific audit managers and audit partners on the perceptions of senior accountants. This study asked seniors to respond to the typical situation. Additional insight into the evaluation process could be obtained by examining perceptions on an individual basis.
APPENDIX A

AUDIT SENIOR QUESTIONNAIRE
PERFORMANCE EVALUATION QUESTIONNAIRE

This questionnaire is part of a study concerned with the performance evaluation process in CPA firms. Our research group (comprised of accountants and psychologists at The Ohio State University) is concerned with how the evaluation process affects the motivation, satisfaction and performance of senior accountants. To obtain data for our study, we are asking that you complete this questionnaire.

Other questionnaires are being completed by firm members who have served as your assistant or superior on recent audits. Part of their task will be to evaluate your performance. We are not interested in their evaluation of your performance per se. We are only interested in the general relationship between aspects of the evaluation process and the performance of senior accountants. No one in the firm will see the responses of another firm member. All questionnaires will be under the control of the research group at The Ohio State University. Therefore, questionnaire responses will have no effect on your standing in the firm. To facilitate confidentiality, we have coded your questionnaire with a five-digit number. The name associated with a number is known only to the research group. When you have completed the questionnaire, please place it in the envelope provided and mail it directly to the research group.

Many individuals in several offices are taking part in this study. A summary of the significant findings of our research will be made available to everyone participating in the study. The evaluation process has a tremendous impact on the career of everyone in public accounting. Your frank and thoughtful answers to this questionnaire will make a significant contribution to our understanding of the evaluation process.

If you have any questions regarding the study or the questionnaire, please contact:

James Jiambalvo CPA
23 Hagerty Hall
The Ohio State University
614-422-8671 (Office)
614-263-7385 (Home)

Thank you for cooperating with this research.
GENERAL INSTRUCTIONS

This questionnaire is composed of two parts. Part one contains eight questions and part two contains seven questions. Take as much time as you feel is necessary in answering the following questions. If upon further reflection you would like to change an answer, please do so. You should be able to complete the questionnaire in about thirty minutes.
PART 1

As a senior accountant, your performance is evaluated on a number of criteria. In this study, we are interested in the nine criteria listed below. Several of these criteria are similar to areas covered on the staff evaluation report used in your firm. This is not a complete list of evaluation criteria and you can probably think of several others. However, in this study we are limiting our attention to these criteria. Please take a few minutes to familiarize yourself with them. The questions which follow are related to these criteria.

1. Understanding accounting principles, auditing standards and firm technical releases. Effective performance on this criterion requires that the senior keep current on technical developments through reading and study both on and off the job. Active participation in firm training seminars also contributes to effective performance.

2. Planning audit work. Effective performance on this criterion requires that the senior determine the special problems presented by the audit. This information should be used in planning the nature and extent of audit procedures, the assignment of audit areas to assistants and the timing of audit procedures. Realistic time budgets should also be prepared.

3. Promoting additional services to current clients. Effective performance on this criterion requires that the senior discuss firm services with client personnel and relate firm services to client's needs.

4. Revising audit programs. Effective performance on this criterion requires that the senior revise programs either to accommodate changes in client's accounting system or to accomplish tasks more efficiently.

5. Providing appropriate on-the-job training of assistants. Effective performance on this criterion requires that the senior explain the purpose and procedures of tasks assigned to inexperienced assistants. Experienced assistants should receive similar training when assigned more challenging tasks.

6. Recognizing client's significant problems and suggesting solutions suitable for inclusion in a letter to management. Effective performance on this criterion requires that the senior consider not only the client's financial accounting system but also their managerial accounting system, plant procedures, etc.

7. Reviewing work of assistants. Effective performance on this criterion requires that the senior determine that tasks are completed properly and loose ends are wrapped up.

8. Obtaining the cooperation and respect of client's personnel. Effective performance on this criterion can be accomplished in many ways. Time spent discussing the audit, the client's business or merely socializing with client personnel may lead to effective performance.

9. Demonstrating an area of special competence (e.g., knowledge of tax laws, SEC practice or a particular industry). Effective performance on this criterion requires that the senior acquire special knowledge through reading and study both on and off the job. Active participation in firm training seminars also contributes to effective performance.
1. In this question we are interested in how you would rate your typical performance on each evaluation criterion. Please score each evaluation criterion using the scale below. Circle the number following each evaluation criterion that most nearly indicates your feelings.

<table>
<thead>
<tr>
<th>(1) Poor</th>
<th>(2)</th>
<th>(3) Average</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7) Outstanding</th>
</tr>
</thead>
</table>

(a) Understanding accounting principles, auditing standards and firm technical releases.  
(b) Planning audit work.  
(c) Promoting additional services to current clients.  
(d) Revising audit programs.  
(e) Providing appropriate on-the-job training of assistants.  
(f) Recognizing client's significant problems and suggesting solutions suitable for inclusion in a letter to management.  
(g) Reviewing work of assistants.  
(h) Obtaining the cooperation and respect of client's personnel.  
(i) Demonstrating an area of special competence (e.g. knowledge of tax laws, SEC practice or a particular industry).
2. In this question we are interested in how well audit managers rate your performance on each evaluation criterion. Please score each evaluation criterion in terms of how often you feel your performance receives the proper rating. Circle the number that most nearly indicates your feelings.

<table>
<thead>
<tr>
<th>(1) Never</th>
<th>(2) Sometimes</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7) Always</th>
</tr>
</thead>
</table>

(a) Understanding accounting principles, auditing standards and firm technical releases.  
(b) Planning audit work.  
(c) Promoting additional services to current clients.  
(d) Revising audit programs.  
(e) Providing appropriate on-the-job training of assistants.  
(f) Recognizing client's significant problems and suggesting solutions suitable for inclusion in a letter to management.  
(g) Reviewing work of assistants.  
(h) Obtaining the cooperation and respect of client's personnel.  
(i) Demonstrating an area of special competence (e.g. knowledge of tax laws, SEC practice or a particular industry).
3. In this question we are interested in the amount of time you direct toward each evaluation criterion. For example, the time you spend reading FASB releases is directed toward the evaluation criterion "Understanding Accounting Principles" while the time you spend reviewing working papers is directed toward the evaluation criterion "Reviewing Work of Assistants." The time you spend may depend on the size of the audit. You should base your answer on the amount of time you typically direct toward each evaluation criterion. Recall that you may spend time both on and off the job. Circle the number that most nearly indicates your feelings.

<table>
<thead>
<tr>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very little time</td>
<td></td>
<td></td>
<td>Fair amount of time</td>
<td></td>
<td></td>
<td>Great deal of time</td>
</tr>
</tbody>
</table>

(a) Understanding accounting principles, auditing standards and firm technical releases.  
(b) Planning audit work.  
(c) Promoting additional services to current clients.  
(d) Revising audit programs.  
(e) Providing appropriate on-the-job training of assistants.  
(f) Recognizing client's significant problems and suggesting solutions suitable for inclusion in a letter to management.  
(g) Reviewing work of assistants.  
(h) Obtaining the cooperation and respect of client's personnel.  
(i) Demonstrating an area of special competence (e.g. knowledge of tax laws, SEC practice or a particular industry).
In this question we are interested in your perception of the amount of time you direct toward each evaluation criterion in comparison to other senior accountants. Obviously, you don't know the exact amount of time other seniors spend. We are only interested in how much more or less time you feel you may direct toward each evaluation criterion. Circle the number that most nearly indicates your feelings.

HOW MUCH TIME DO YOU DIRECT TOWARD THIS CRITERION IN COMPARISON TO OTHER SENIORS?

(1) Much less time  (2) About the same amount of time  (3)  (4)  (5)  (6) Much more time

(a) Understanding accounting principles, auditing standards and firm technical releases.
(b) Planning audit work.
(c) Promoting additional services to current clients.
(d) Revising audit programs.
(e) Providing appropriate on-the-job training of assistants.
(f) Recognizing client's significant problems and suggesting solutions suitable for inclusion in a letter to management.
(g) Reviewing work of assistants.
(h) Obtaining the cooperation and respect of client's personnel.
(i) Demonstrating an area of special competence (e.g. knowledge of tax laws, SEC practice or a particular industry).
5. In this question we are interested in the relationship between the amount of time directed toward an evaluation criterion and performance. If spending a lot of time results in high performance, then performance and time are related. If spending a lot of time does not result in high performance, then performance and time are not related. If spending very little time results in high performance, then performance and time are not related. If spending very little time results in a low level of performance, then performance and time are related. Please rate the relationship between time spent and performance for each evaluation criterion. Circle the number that most nearly indicates your feelings.

(1) (2) (3) (4) (5) (6) (7)
Not related Somewhat related Highly related

(a) Understanding accounting principles, auditing standards and firm technical releases.

(b) Planning audit work.

(c) Promoting additional services to current clients.

(d) Revising audit programs.

(e) Providing appropriate on-the-job training of assistants.

(f) Recognizing client's significant problems and suggesting solutions suitable for inclusion in a letter to management.

(g) Reviewing work of assistants.

(h) Obtaining the cooperation and respect of client's personnel.

(i) Demonstrating an area of special competence (e.g. knowledge of tax laws, SEC practice or a particular industry).
6. The partners in your office meet once or twice a year to assess your performance. In reaching an overall evaluation of performance, some of the criteria listed below may be more important to them than others. In this question we are interested in your perception of the relative importance of each criterion. Circle the number that most nearly indicates your feelings.

<p>| | | | | | | | |</p>
<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
<td>(7)</td>
<td></td>
</tr>
<tr>
<td>Much less than other criteria</td>
<td>About the same as other criteria</td>
<td>Much more than other criteria</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

WHAT IS THE RELATIVE IMPORTANCE OF THIS EVALUATION CRITERION IN DETERMINING OVERALL EVALUATIONS?

(a) Understanding accounting principles, auditing standards and firm technical releases.   
(b) Planning audit work.   
(c) Promoting additional services to current clients.   
(d) Revising audit programs.   
(e) Providing appropriate on-the-job training of assistants.   
(f) Recognizing client's significant problems and suggesting solutions suitable for inclusion in a letter to management.   
(g) Reviewing work of assistants.   
(h) Obtaining the cooperation and respect of client's personnel.   
(i) Demonstrating an area of special competence (e.g. knowledge of tax laws, SEC practice or a particular industry).
7. In this question we are interested in what should be the relative importance of each criterion. In other words, regardless of a criterion's actual importance, what do you believe the relative importance should be? Circle the number that most nearly indicates your feelings.

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Much less than other criteria</td>
<td>About the same as other criteria</td>
<td>Much more than other criteria</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(a) Understanding accounting principles, auditing standards and firm technical releases.  
1 2 3 4 5 6 7

(b) Planning audit work.  
1 2 3 4 5 6 7

(c) Promoting additional services to current clients.  
1 2 3 4 5 6 7

(d) Revising audit programs.  
1 2 3 4 5 6 7

(e) Providing appropriate on-the-job training of assistants.  
1 2 3 4 5 6 7

(f) Recognizing client's significant problems and suggesting solutions suitable for inclusion in a letter to management.  
1 2 3 4 5 6 7

(g) Reviewing work of assistants.  
1 2 3 4 5 6 7

(h) Obtaining the cooperation and respect of client's personnel.  
1 2 3 4 5 6 7

(i) Demonstrating an area of special competence (e.g. knowledge of tax laws, SEC practice or a particular industry).  
1 2 3 4 5 6 7
8. In this question we are interested in how much you like the activities associated with each evaluation criterion. We are concerned with how much you like the activities for their own sake rather than as a means of obtaining some other outcome or reward. Circle the number which most nearly indicates your feelings.

(1) (2) (3) (4) (5) (6) (7)
    Strongly Dislike Neutral Strongly Like

(a) Understanding accounting principles, auditing standards and firm technical releases. 1 2 3 4 5 6 7
(b) Planning audit work. 1 2 3 4 5 6 7
(c) Promoting additional services to current clients. 1 2 3 4 5 6 7
(d) Revising audit programs. 1 2 3 4 5 6 7
(e) Providing appropriate on-the-job training of assistants. 1 2 3 4 5 6 7
(f) Recognizing client's significant problems and suggesting solutions suitable for inclusion in a letter to management. 1 2 3 4 5 6 7
(g) Reviewing work of assistants. 1 2 3 4 5 6 7
(h) Obtaining the cooperation and respect of client's personnel. 1 2 3 4 5 6 7
(i) Demonstrating an area of special competence (e.g. knowledge of tax laws, SEC practice or a particular industry). 1 2 3 4 5 6 7
PART 2

1. In this question we are interested in your opinion regarding the desirability of the conditions and outcomes listed below. Circle the number that most nearly indicates your feelings.

(1) (2) (3) (4) (5) (6) (7)
Extremely undesirable Neutral Extremely desirable

HOW DESIRABLE IS THIS CONDITION OR OUTCOME?

(a) Feeling of accomplishment. 1 2 3 4 5 6 7
(b) Job pressure. 1 2 3 4 5 6 7
(c) Promotion to manager. 1 2 3 4 5 6 7
(d) Challenging audit assignments. 1 2 3 4 5 6 7
(e) Out of town assignments. 1 2 3 4 5 6 7
(f) Respect from fellow accountants. 1 2 3 4 5 6 7
(g) Freedom to carry out own ideas. 1 2 3 4 5 6 7
(h) High pay. 1 2 3 4 5 6 7
(i) Overtime. 1 2 3 4 5 6 7
(j) Job security. 1 2 3 4 5 6 7

2. How satisfied are you with the way your performance is evaluated by audit managers? (Circle one).

(1) (2) (3) (4) (5) (6) (7)
Extremely dissatisfied Indifferent Extremely satisfied

3. How satisfied are you with the way the data reported on the staff evaluation reports are used by the partners in arriving at an overall evaluation of your performance. (Circle one).

(1) (2) (3) (4) (5) (6) (7)
Extremely dissatisfied Indifferent Extremely satisfied
4. To what extent do you feel the partners' overall evaluation of your performance is based upon the information contained in the staff evaluation reports. (Circle one).

(1) Does not depend on reports
(2) Depends somewhat on reports
(3) Greatly depends on reports

5. In this question we are interested in the relationship between a high overall evaluation and the conditions and outcomes listed below. Please score each condition or outcome in terms of how much a high overall evaluation increases or decreases the chance that the condition or outcome will occur. Circle the number that most nearly indicates your feelings.

(1) Greatly decreases the chance of occurrence
(2) Does not affect the chance of occurrence
(3) Greatly increases the chance of occurrence

(a) Feeling of accomplishment.
(b) Job pressure.
(c) Promotion to manager.
(d) Challenging audit assignments.
(e) Out of town assignments.
(f) Respect from fellow accountants.
(g) Freedom to carry out own ideas.
(h) High pay.
(i) Overtime.
(j) Job security.
6. To what extent do you feel you are fairly evaluated by audit managers. Please describe your situation.

7. We would appreciate any comments you might have on this study and the evaluation of performance in your office.

Please provide the following background information:

Age: ______ years. Sex: ______ male ______ female.

Highest college degree program completed: ______ Bachelors ______ Masters ______ Doctorate ______ no college degree.

Have you passed the CPA examination? ______ (Yes or No).

Number of years worked in Public Accounting: ______.

Number of years in current firm: ______.

Current position (Assistant, Senior, Manager, Partner) ______.

Number of months in current position: ______.

PLEASE CHECK YOUR QUESTIONNAIRE TO MAKE SURE YOU HAVE ANSWERED ALL OF THE ITEMS. THANK YOU FOR YOUR HELP.
APPENDIX B

AUDIT ASSISTANT QUESTIONNAIRE
THE OHIO STATE UNIVERSITY

PERFORMANCE EVALUATION QUESTIONNAIRE

This questionnaire is part of a study concerned with the performance evaluation process in CPA firms. Our research group (comprised of accountants and psychologists at The Ohio State University) is concerned with how the evaluation process affects the motivation, satisfaction and performance of senior accountants. To obtain data for our study, we are asking that you complete this questionnaire.

Essentially, we are interested in your perceptions of the performance of a particular senior accountant. This individual will be identified in the questionnaire. We are not interested in this individual per se. We are only interested in the general relationship between certain variables we are measuring in other questionnaires and the performance of senior accountants. You have recently been the assistant to the senior indicated in the questionnaire. Therefore, we felt that you could provide a unique assessment of his (her) performance. No one in the firm will see the responses of another firm member. All questionnaires will be under the control of the research group at The Ohio State University. Therefore, your responses to this questionnaire will have no affect on the standing of the senior in the firm. To facilitate confidentiality, please place the completed questionnaire in the envelope provided and mail it directly to the research group.

Many individuals in several offices are taking part in this study. A summary of the significant findings of our research will be made available to everyone participating in the study. The evaluation process has a tremendous impact on the career of everyone in public accounting. Your frank and thoughtful answers to this questionnaire will make a significant contribution to our understanding of the evaluation process.

If you have any questions regarding the study or the questionnaire, please contact:

James Jlambalvo CPA
23 Hagerty Hall
The Ohio State University
614-422-8671 (Office)
614-263-7385 (Home)

Thank you for cooperating with this research.
GENERAL INSTRUCTIONS

The performance of senior accountants is evaluated on a number of criteria. In this study, we are interested in the nine criteria listed below. Several of these criteria are similar to areas covered on the staff evaluation report used in your firm. This is not a complete list of evaluation criteria and you can probably think of several others. However, in this study we are limiting our attention to these criteria. Please take a few minutes to familiarize yourself with them. You will be asked to rate the performance of a certain senior on these criteria.

(1) Understanding accounting principles, auditing standards and firm technical releases. Effective performance on this criterion requires that the senior keep current on technical developments through reading and study both on and off the job. Active participation in firm training seminars also contributes to effective performance.

(2) Planning audit work. Effective performance on this criterion requires that the senior determine the special problems presented by the audit. This information should be used in planning the nature and extent of audit procedures, the assignment of audit areas to assistants and the timing of audit procedures. Realistic time budgets should also be prepared.

(3) Promoting additional services to current clients. Effective performance on this criterion requires that the senior discuss firm services with client personnel and relate firm services to client's needs.

(4) Revising audit programs. Effective performance on this criterion requires that the senior revise programs either to accommodate changes in client's accounting system or to accomplish tasks more efficiently.

(5) Providing appropriate on-the-job training of assistants. Effective performance on this criterion requires that the senior explain the purpose and procedures of tasks assigned to inexperienced assistants. Experienced assistants should receive similar training when assigned more challenging tasks.

(6) Recognizing client's significant problems and suggesting solutions suitable for inclusion in a letter to management. Effective performance on this criterion requires that the senior consider not only the client's financial accounting system but also their managerial accounting system, plant procedures, etc.

(7) Reviewing work of assistants. Effective performance on this criterion requires that the senior determine that tasks are completed properly and loose ends are wrapped up.

(8) Obtaining the cooperation and respect of client's personnel. Effective performance on this criterion can be accomplished in many ways. Time spent discussing the audit, the client's business or merely socializing with client personnel may lead to effective performance.

(9) Demonstrating an area of special competence (e.g., knowledge of tax laws, SEC practice or a particular industry). Effective performance on this criterion requires that the senior acquire special knowledge through reading and study both on and off the job. Active participation in firm training seminars also contributes to effective performance.
We are interested in how you would rate the performance of... on each evaluation criterion. You may find it difficult to rate the senior's performance on some of the items. However, it is important that you rate his (her) performance on all of the criteria. Remember that we are interested in your perception of the senior's performance. Please score each criterion using the scale below. Circle the number following each evaluation criterion that most nearly indicates your feelings.

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<th>Poor</th>
<th>Average</th>
<th>Outstanding</th>
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WHAT IS THE SENIOR'S PERFORMANCE ON THIS CRITERION?

(a) Understanding accounting principles, auditing standards and firm technical releases.

(b) Planning audit work.

(c) Promoting additional services to current clients.

(d) Revising audit programs.

(e) Providing appropriate on-the-job training of assistants.

(f) Recognizing client's significant problems and suggesting solutions suitable for inclusion in a letter to management.

(g) Reviewing work of assistants.

(h) Obtaining the cooperation and respect of client's personnel.

(i) Demonstrating an area of special competence (e.g. knowledge of tax laws, SEC practice or a particular industry).
Please provide the following background information:

Age: ___________ years.  Sex: __ male __ female.

Highest college degree program completed: ___________ Bachelors ______ Masters ______ Doctorate ______ no college degree.

Have you passed the CPA examination? ___________ (Yes or No).

Number of years worked in Public Accounting: ___________.

Number of years in current firm: ___________.

Current position (Assistant, Senior, Manager, Partner) ___________.

Number of months in current position: ___________.

PLEASE CHECK YOUR QUESTIONNAIRE TO MAKE SURE YOU HAVE
ANSWERED ALL OF THE ITEMS. THANK YOU FOR YOUR HELP.
APPENDIX C

AUDIT MANAGER QUESTIONNAIRE
THE OHIO STATE UNIVERSITY

PERFORMANCE EVALUATION QUESTIONNAIRE

This questionnaire is part of a study concerned with the performance evaluation process in CPA firms. Our research group (comprised of accountants and psychologists at The Ohio State University) is concerned with how the evaluation process affects the motivation, satisfaction and performance of senior accountants. To obtain data for our study, we are asking that you complete the enclosed questionnaire.

Essentially, we are interested in your perceptions of the performance of one or more senior accountants. These individuals will be identified in the questionnaire. We are not interested in these individuals per se. We are only interested in the general relationship between certain variables we are measuring in other questionnaires and the behavior and performance of senior accountants. You are currently (or have recently been) the supervisor of these senior accountants. Therefore, we felt that you could provide a unique assessment of their performance. No one in the firm will see the responses of another firm member. All questionnaires will be under the control of the research group at The Ohio State University. Therefore, your responses to this questionnaire will have no affect on the standing of the seniors in the firm. To facilitate confidentiality, please place the completed questionnaire in the envelope provided and mail it directly to the research group.

Many individuals in several offices are taking part in this study. A summary of the significant findings of our research will be made available to everyone participating in the study. The evaluation process has a tremendous impact on the career of everyone in public accounting. Your frank and thoughtful answers to this questionnaire will make a significant contribution to our understanding of the evaluation process.

If you have any questions regarding the study or the questionnaire, please contact:

James Jiambalvo CPA
23 Hagerty Hall
The Ohio State University
614-422-8671 (Office)
614-263-7385 (Home)

Thank you for cooperating with this research.
GENERAL INSTRUCTIONS

This questionnaire is composed of two parts. Part one is concerned with the performance of one or more senior accountants who are identified in the questions. Part two is concerned with your perceptions of the evaluation process. Take as much time as you feel is necessary in answering the following questions. If upon further reflection you would like to change an answer, please do so.
PART 1

The performance of senior accountants is evaluated on a number of criteria. In this study, we are interested in the nine criteria listed below. Several of these criteria are similar to areas covered on the staff evaluation report used in your firm. This is not a complete list of evaluation criteria and you can probably think of several others. However, in this study we are limiting our attention to these criteria. Please take a few minutes to familiarize yourself with them. The questions which follow are related to these criteria.

1) **Understanding accounting principles, auditing standards and firm technical releases.** Effective performance on this criterion requires that the senior keep current on technical developments through reading and study both on and off the job. Active participation in firm training seminars also contributes to effective performance.

2) **Planning audit work.** Effective performance on this criterion requires that the senior determine the special problems presented by the audit. This information should be used in planning the nature and extent of audit procedures, the assignment of audit areas to assistants and the timing of audit procedures. Realistic time budgets should also be prepared.

3) **Promoting additional services to current clients.** Effective performance on this criterion requires that the senior discuss firm services with client personnel and relate firm services to client's needs.

4) **Revising audit programs.** Effective performance on this criterion requires that the senior revise programs either to accommodate changes in client's accounting system or to accomplish tasks more efficiently.

5) **Providing appropriate on-the-job training of assistants.** Effective performance on this criterion requires that the senior explain the purpose and procedures of tasks assigned to inexperienced assistants. Experienced assistants should receive similar training when assigned more challenging tasks.

6) **Recognizing client's significant problems and suggesting solutions suitable for inclusion in a letter to management.** Effective performance on this criterion requires that the senior consider not only the client's financial accounting system but also their managerial accounting system, plant procedures, etc.

7) **Reviewing work of assistants.** Effective performance on this criterion requires that the senior determine that tasks are completed properly and loose ends are wrapped up.

8) **Obtaining the cooperation and respect of client's personnel.** Effective performance on this criterion can be accomplished in many ways. Time spent discussing the audit, the client's business or merely socializing with client personnel may lead to effective performance.

9) **Demonstrating an area of special competence (e.g. knowledge of tax laws, SEC practice or a particular industry).** Effective performance on this criterion requires that the senior acquire special knowledge through reading and study both on and off the job. Active participation in firm training seminars also contributes to effective performance.
1. In this question we are interested in how you would rate the performance of the senior on each evaluation criterion. Please score each criterion using the scale below. Circle the number following each evaluation criterion that most nearly indicates your feelings.

(1) Poor (2) (3) Average (4) (5) (6) (7) Outstanding

WHAT IS THE SENIOR'S PERFORMANCE ON THIS CRITERION?

(a) Understanding accounting principles, auditing standards and firm technical releases.

(b) Planning audit work.

(c) Promoting additional services to current clients.

(d) Revising audit programs.

(e) Providing appropriate on-the-job training of assistants.

(f) Recognizing client's significant problems and suggesting solutions suitable for inclusion in a letter to management.

(g) Reviewing work of assistants.

(h) Obtaining the cooperation and respect of client's personnel.

(i) Demonstrating an area of special competence (e.g. knowledge of tax laws, SEC practice or a particular industry).

2. Please rate the overall performance of the senior listed above (circle one).

(1) Poor (2) (3) Average (4) (5) (6) (7) Outstanding
PART 2

1. In reaching an **overall evaluation** of a senior's performance, some of the criteria listed below may be more important to you than others. In this question we are interested in your perception of the relative importance of each criterion. Circle the number that most nearly indicates your feelings.

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<td>Much less than other criteria</td>
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<td>Much more than other criteria</td>
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**WHAT IS THE RELATIVE IMPORTANCE OF THIS CRITERION IN DETERMINING YOUR OVERALL EVALUATION OF A SENIOR'S PERFORMANCE?**

(a) Understanding accounting principles, auditing standards and firm technical releases.  
(b) Planning audit work.  
(c) Promoting additional services to current clients.  
(d) Revising audit programs.  
(e) Providing appropriate on-the-job training of assistants.  
(f) Recognizing client's significant problems and suggesting solutions suitable for inclusion in a letter to management.  
(g) Reviewing work of assistants.  
(h) Obtaining the cooperation and respect of client's personnel.  
(i) Demonstrating an area of special competence (e.g. knowledge of tax laws, SEC practice or a particular industry).
2. In this question we are interested in your perception of how well you can assess the performance of a senior accountant. Obviously, you are not with the senior every minute of the day. Therefore, your knowledge of his (her) performance may not be perfectly accurate. Please score each evaluation criterion in terms of how often the senior receives the proper rating. Circle the number that most nearly indicates your feelings.

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<tr>
<td>(1) Never</td>
<td>(2) Sometimes</td>
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<td>(4)</td>
<td>(5)</td>
<td>(6) Always</td>
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(a) Understanding accounting principles, auditing standards and firm technical releases.  
(b) Planning audit work.  
(c) Promoting additional services to current clients.  
(d) Revising audit programs.  
(e) Providing appropriate on-the-job training of assistants.  
(f) Recognizing client's significant problems and suggesting solutions suitable for inclusion in a letter to management.  
(g) Reviewing work of assistants.  
(h) Obtaining the cooperation and respect of client's personnel.  
(i) Demonstrating an area of special competence (e.g. knowledge of tax laws, SEC practice or a particular industry).
Please provide the following background information:

Age: _____ years. Sex: ______ male ______ female.

Highest college degree program completed: ______ Bachelors ______ Masters ______ Doctorate ______ no college degree.

Have you passed the CPA examination? ______ (Yes or No).

Number of years worked in Public Accounting: ______.

Number of years in current firm: ______.

Current position (Assistant, Senior, Manager, Partner) ______.

Number of months in current position: ______.

PLEASE CHECK YOUR QUESTIONNAIRE TO MAKE SURE YOU HAVE ANSWERED ALL OF THE ITEMS. THANK YOU FOR YOUR HELP.
APPENDIX D

AUDIT PARTNER QUESTIONNAIRE
This questionnaire is part of a study concerned with the performance evaluation process in CPA firms. Our research group (comprised of accountants and psychologists at The Ohio State University) is concerned with how the evaluation process affects the motivation, satisfaction and performance of senior accountants. To obtain data for our study, we are asking that you complete the enclosed questionnaire.

Essentially, we are interested in your perceptions of the performance of several senior accountants. These individuals will be identified in the questionnaire. We are not interested in these individuals per se. We are only interested in the general relationship between certain variables we are measuring in other questionnaires and the behavior and performance of senior accountants. No one in the firm will see the responses of another firm member. All questionnaires will be under the control of the research group at The Ohio State University. Therefore, your responses to this questionnaire will have no effect on the standing of the seniors in the firm. To facilitate confidentiality, please place the completed questionnaire in the envelope provided and mail it directly to the research group.

Many individuals in several offices are taking part in this study. A summary of the significant findings of our research will be made available to everyone participating in the study. The evaluation process has a tremendous impact on the career of everyone in public accounting. Your frank and thoughtful answers to this questionnaire will make a significant contribution to our understanding of the evaluation process.

If you have any questions regarding the study or the questionnaire, please contact:

James Jiambalvo CPA
23 Hagerty Hall
The Ohio State University
614-422-8671 (Office)
614-263-7385 (Home)

Thank you for cooperating with this research.
The performance of senior accountants is evaluated on a number of criteria. In this study, we are interested in the nine criteria listed below. Several of these criteria are similar to areas covered on the staff evaluation report used in your firm. This is not a complete list of evaluation criteria and you can probably think of several others. However, in this study we are limiting our attention to these criteria. Please take a few minutes to familiarize yourself with them. The questions which follow are related to these criteria.

1. **Understanding accounting principles, auditing standards and firm technical releases.** Effective performance on this criterion requires that the senior keep current on technical developments through reading and study both on and off the job. Active participation in firm training seminars also contributes to effective performance.

2. **Planning audit work.** Effective performance on this criterion requires that the senior determine the special problems presented by the audit. This information should be used in planning the nature and extent of audit procedures, the assignment of audit areas to assistants and the timing of audit procedures. Realistic time budgets should also be prepared.

3. **Promoting additional services to current clients.** Effective performance on this criterion requires that the senior discuss firm services with client personnel and relate firm services to client's needs.

4. **Revising audit programs.** Effective performance on this criterion requires that the senior revise programs either to accommodate changes in client's accounting system or to accomplish tasks more efficiently.

5. **Providing appropriate on-the-job training of assistants.** Effective performance on this criterion requires that the senior explain the purpose and procedures of tasks assigned to inexperienced assistants. Experienced assistants should receive similar training when assigned more challenging tasks.

6. **Recognizing client's significant problems and suggesting solutions suitable for inclusion in a letter to management.** Effective performance on this criterion requires that the senior consider not only the client's financial accounting system but also their managerial accounting system, plant procedures, etc.

7. **Reviewing work of assistants.** Effective performance on this criterion requires that the senior determine that tasks are completed properly and loose ends are wrapped up.

8. **Obtaining the cooperation and respect of client's personnel.** Effective performance on this criterion can be accomplished in many ways. Time spent discussing the audit, the client's business or merely socializing with client personnel may lead to effective performance.

9. **Demonstrating an area of special competence (e.g. knowledge of tax laws, SEC practice or a particular industry).** Effective performance on this criterion requires that the senior acquire special knowledge through reading and study both on and off the job. Active participation in firm training seminars also contributes to effective performance.
1. In reaching an overall evaluation of a senior’s performance, some of the criteria listed below may be more important to you than others. In this question we are interested in your perception of the relative importance of each criterion. Please score each criterion using the scale below. Circle the number following each evaluation criterion that most nearly indicates your feelings.

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<td>Much less than other criteria</td>
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(a) Understanding accounting principles, auditing standards and firm technical releases.
(b) Planning audit work.
(c) Promoting additional services to current clients.
(d) Revising audit programs.
(e) Providing appropriate on-the-job training of assistants.
(f) Recognizing client’s significant problems and suggesting solutions suitable for inclusion in a letter to management.
(g) Reviewing work of assistants.
(h) Obtaining the cooperation and respect of client’s personnel.
(i) Demonstrating an area of special competence (e.g., knowledge of tax laws, SEC practice or a particular industry).
2. The time a senior spends reading FASB releases is directed toward the evaluation criterion "Understanding Accounting Principles" while the time spent reviewing working papers is directed toward the evaluation criterion "Reviewing Work of Assistants." In this question we are interested in the amount of time you feel a senior should direct toward each evaluation criterion. You may feel that the amount of time depends on the size of the audit. You should base your answer on the typical situation. Recall that the senior may spend time both on and off the job. Circle the number that most nearly indicates your feelings.

<table>
<thead>
<tr>
<th>(1) Very little time</th>
<th>(2) Fair amount of time</th>
<th>(3) Great deal of time</th>
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(a) Understanding accounting principles, auditing standards and firm technical releases.  
1 2 3 4 5 6 7
(b) Planning audit work.  
1 2 3 4 5 6 7
(c) Promoting additional services to current clients.  
1 2 3 4 5 6 7
(d) Revising audit programs.  
1 2 3 4 5 6 7
(e) Providing appropriate on-the-job training of assistants.  
1 2 3 4 5 6 7
(f) Recognizing client's significant problems and suggesting solutions suitable for inclusion in a letter to management.  
1 2 3 4 5 6 7
(g) Reviewing work of assistants.  
1 2 3 4 5 6 7
(h) Obtaining the cooperation and respect of client's personnel.  
1 2 3 4 5 6 7
(i) Demonstrating an area of special competence (e.g. knowledge of tax laws, SEC practice or a particular industry).  
1 2 3 4 5 6 7
3. In this question we would like you to rate the overall performance of a number of senior accountants. If you are not familiar with the performance of a particular senior, do not rate the senior. Instead, place an X in the space provided for the rating. Rate each senior using the scale below. Use the number that most nearly indicates your feelings.

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<th>SENIOR</th>
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Please provide the following background information:

Age: _____ years.  Sex: _____ male  _____ female.

Highest college degree program completed: _____ Bachelors  _____ Masters 
_____ Doctorate  _____ no college degree.

Have you passed the CPA examination? _____ (Yes or No).

Number of years worked in Public Accounting: _____

Number of years in current firm: _____

Current position (Assistant, Senior, Manager, Partner): _____

Number of months in current position: _____

PLEASE CHECK YOUR QUESTIONNAIRE TO MAKE SURE YOU HAVE
ANSWERED ALL OF THE ITEMS. THANK YOU FOR YOUR HELP.


Burns, T. J., ed., Behavioral Experiments in Accounting (The Ohio State University, 1972).


Magnusson, D., Test Theory (Addison-Wesley, 1967).


Studies on Human Information Processing in Accounting, Supplement to Journal of Accounting Research (1976).


