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A COMPARISON OF BOOKKEEPING AND/OR ACCOUNTING
TASKS PERFORMED BY ENTRY-LEVEL EMPLOYEES
IN SELECTED UTAH BUSINESSES AND BOOKKEEPING
AND/OR ACCOUNTING TASKS TAUGHT IN
UTAH PUBLIC SECONDARY SCHOOLS

by

Robert B. Jenkins

A dissertation submitted in partial
fulfillment of the requirements
for the degree
of

DOCTOR OF EDUCATION

in

Curriculum Development and Supervision
with a Special Emphasis in

Business Education

Approved:

UTAH STATE UNIVERSITY
Logan, Utah

1980

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ACKNOWLEDGMENTS

Sincere appreciation is extended to Dr. Lloyd Bartholome for his guidance, patience and encouragement without which the study would never have been completed.

Appreciation is expressed to each one of the committee members for their guidance and support. Special thanks are given to each of the teachers and employees who took the time to complete the questionnaire utilized in the study.

Thanks and appreciation are extended to my employer at Utah Technical College at Provo, C. LaVar Rockwood for his encouragement and support in the completion of the study and to my coworkers, Becky Angus and Shelley Snell who encouraged me and had patience with my efforts.

To my family and friends, very special thanks for the support, patience and encouragement given to me throughout this experience.

Robert B. Jenkins

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ABSTRACT

A Comparison of Bookkeeping and/or Accounting
Tasks Performed by Entry-level Employees
In Selected Utah Businesses and Bookkeeping
and/or Accounting Tasks Taught in
Utah Public Secondary Schools

by

Robert B. Jenkins

Utah State University, 1980

Major Professor: Dr. Lloyd Bartholome

Department: Business Education

The purpose of this study was to compare the book-keeping and/or accounting tasks being performed by entry-level workers with bookkeeping and/or accounting tasks being taught in Utah secondary schools.

The study was limited to entry-level employees in 24 randomly selected Utah firms in three size classifications. Standard Industrial Classifications were used to provide a diversity in type of business surveyed. Bookkeeping and/or accounting supervisors were contacted

and interviewed in each of the selected businesses. Entry-level employees performing bookkeeping and/or accounting tasks were identified and questionnaires were distributed to them. Usable questionnaires were secured from all businesses.

From a list of teachers provided by the Utah State Board for Vocational Education, questionnaires were mailed to 100 teachers who were or had been teaching bookkeeping and/or accounting classes. Of the 100 questionnaires mailed, 77 were returned. Of these, 48 were usable, 7 were partially completed and 22 indicated they were not teaching bookkeeping and/or accounting.

The questionnaire contained a list of bookkeeping and/or accounting tasks. Respondents were asked to rate the tasks in three categories: frequency, performance and importance. Frequency related to how often the task was performed. Performance related to the degree of supervision required of a person performing the task. Importance related to the importance of the task for securing and maintaining an entry-level bookkeeping and/or accounting position.

Analysis of variance tests were used to determine significance between the responses of the entry-level employees and teachers on each task. Means and standard deviations were calculated for teachers, all businesses combined, small businesses, medium businesses and large

businesses. Tasks were ranked from high to low in each of the categories.

The following conclusions were made:

1. When considering frequency, teachers and entry-level employees of all businesses combined and small, medium and large businesses separately did not agree on most categories of tasks. They did not disagree on most tasks involving payroll and performing data processing activities. In most cases teachers rated tasks higher than did entry-level employees.

2. When considering performance, teachers and all entry-level employees combined did not agree on most categories of tasks. However, when responses of employees of small, medium and large businesses were compared separately, they did not disagree on many categories of tasks. In most cases, teachers rated tasks higher than entry-level employees.

3. When considering importance, teachers and all entry-level employees combined did not agree on many categories of tasks. However, when responses of employees of small, medium and large businesses were compared separately, they did not disagree on many categories of tasks. In most cases, teachers rated tasks higher than entry-level employees.

4. When ranking tasks for frequency teachers and entry-level employees ranked operating telephone equipment, calculators and ten-key adding machines, checking accounts,

payroll preparation, cash receipts journals and accounts receivable ledgers high. Both groups rated tasks involved with financial statement analysis low.

5. When ranking tasks for performance, teachers and entry-level employees of all businesses ranked operating telephone equipment, calculators, adding machines, checking accounts and ledgers high. Both groups rated tasks involved with financial statement analysis low.

6. When ranking tasks for importance, teachers and entry-level employees of all businesses ranked operating adding machines, calculators, telephone and working with checking accounts high. Both groups rated tasks involved with financial statement analysis low.

7. When ranking tasks for frequency, performance and importance there did not seem to be many differences between the tasks performed by small, medium or large businesses.

The following recommendations were made:

1. Objectives of bookkeeping and/or accounting programs should be reviewed considering the results of this study.

2. The following general areas should be taught in the high school bookkeeping and/or accounting class:

- Operation of office equipment
- Handling cash, checking accounts and deposits
- Analyzing, journalizing and posting transactions
- Payroll calculations and reporting
- Preparation of input for automated processing

3. Emphasis should not be placed on the following areas in high school bookkeeping and/or accounting classes:

- Financial statement analysis
- Ratios and percentages
- Calculation of inventories
- Calculation of depreciation

4. Curriculum content should be reviewed periodically in light of rapidly changing business environments as well as be coordinated and articulated with bookkeeping and/or accounting programs in post-secondary institutions.

5. Follow-up studies of graduates of secondary programs should be undertaken yearly to see what tasks are currently being performed by those workers.

6. Additional research could be performed related to all bookkeeping and/or accounting tasks performed by all workers, tasks performed in other geographic areas, differences between types of companies and comparisons with other research.

CHAPTER ONE

INTRODUCTION

American education is undergoing examination by more people and for more reasons than at any other time in history. Education in society has always reflected the culture of its people (Daughtrey, 1974, p. 1). As Bruner states, "...we have reached a level of public education in America where a considerable portion of our population has become interested in a question that until recently was the concern of specialists: 'What shall we teach and to what end?'" (Bruner, 1969, p. 1). The general purpose of education in a democracy is to help the individual adjust to his environment and to become a self-sufficient, useful member of society.

Traditionally, the elementary and middle grades (K-8) have provided the student with the basic competencies necessary to live in society. Secondary schools have provided a much more intensive program preparing the individual for advanced post-secondary education and, for many students, vocational education.

In 1976, J. Glenn Beall, Jr., United States Senator from Maryland, reported that "Only 15 percent of our population presently, and by 1990 only 22 percent of our

population, will have baccalaureate degrees. Furthermore, manpower information indicates that 80 percent of jobs now and in the foreseeable future will not require a baccalaureate degree." (Beall, 1976, p. 12). The Utah State Advisory Council for Vocational and Technical Education recommended that "A major priority of the total education system in Utah should be to prepare students for their life's work, whatever their choice may be. We must better relate the output of students from the education system, both young people and adults, with employment opportunities, both in Utah and throughout the nation." (Utah State Advisory Council for Vocational and Technical Education, 1977, p. 28). The same Council defined vocational education as that education which prepares a person to enter into and succeed in a chosen occupation or career, other than that for which a baccalaureate degree is required (Utah State Advisory Council for Vocational and Technical Education, 1977, p. 18).

Vocational education is in the midst of a great expansion and intensification. In 1961, President John F. Kennedy appointed a "Panel of Consultants" to study and make recommendations for strengthening vocational education in this country. In the Panel's final report, Education for a Changing World of Work, it said:

Vocational education for high school youth, rural or urban, is an important part of the total educational effort. If it is well-planned, it

will hold students in school for longer periods, make them more productive as they enter the world of work, and give them the security and stability which contribute significantly to political, economic and social well-being. (Tonne and Nanassy, 1970, p. 43-44).

Vocational education has grown to encompass a wide range of services and increasingly is better integrated with academic education. The wave of the future seems to be combining aspects of academic and vocational education to outfit people with the skills they need for daily life. (Barlow, 1976, p. 87). In order to give significance to the word vocational, it must be applied to fields of knowledge that are primarily vocational--business education is one of these fields.

"Business education represents a broad and diverse discipline that is included in all types of educational delivery systems... Business education includes education for office occupations, distribution and marketing occupations, business teaching, business administration, and economic understandings." (The Policies Commission for Business and Economic Education, 1977, p. 1).

In the same policy statement, the Commission further stated:

Whereas we strongly support business education for business which provides potential for making citizens financially self-sufficient and which contributes to career development, and

Whereas we strongly support business education about business which provides

instruction for learning how the private enterprise business system functions and how to manage efficiently one's personal business, and economic life,

We believe that these two dimensions are complementary and that a commitment to this belief by every business educator will lead to a stronger profession that will meet the needs of all students (Policies Commission for Business and Economic Education, 1977, p. 1).

Office and clerical occupations accounted for approximately 29 percent of the total employment in all occupations in 1976. Employment of office and clerical workers is expected to increase faster than the average for all occupations through the mid 1980's (Bureau of Labor Statistics, 1978, p. 89).

For many years the bookkeeper was the principal employee in the typical office. As a result, bookkeeping instruction became one of the more important offerings in the business education curriculum. Over the years, the makeup of the modern office has changed and so has the bookkeeper. Technically, a bookkeeper keeps the books in which the organization's income and expenditures are recorded. The accountant interprets these figures for management. In actual practice, there may be very little difference between the two especially in a small firm (Lederer, 1974, p. 134). Tonne and Nanassy state:

Today, however, the general bookkeeper has disappeared from most business offices. His place has been taken by the auditor and accountant, who

are required to have professional knowledge; by numerous ledger clerks, who need specialized instruction based on duties performed; and by bookkeeping-machine operators, whose numbers have increased rapidly. The result is that a semi-professional or highly skilled occupation of a generation or two ago has split into segments: a definite profession of accountancy and a moderately skilled clerical occupation (Tonne and Nanassy, 1970, p. 265).

In this study the vocational and the related vocational objectives of the bookkeeping and/or accounting program at the secondary school level were investigated. The importance of the vocational and the related vocational objectives is evident from the following statements. Sapre and Perritt commented on the specific vocational objectives of accounting as well as the related vocational objectives when they stated:

Accounting is no longer confined only to reporting to the owner of a business the gains or losses. Users of accounting information now include stockowners; managers; creditors; organized labor; consumer groups; the several agencies of local, state, and federal government; investors and stockbrokers; and the economic press generally (Sapre and Perritt, 1976, p. 7).

Boynton elaborated on the related vocational objective when he stated:

A knowledge of bookkeeping-accounting has importance not only for the vocational bookkeeper or the person training to become a bookkeeper but for others also. Such understanding can be important and helpful to the typist who types statements and materials dealing with financial transactions; to the secretary who takes dictation and transcribes information dealing with business transactions and records; to the file clerk who stores and

must find business records quickly; to the salesperson who records cash and charge transactions and who is concerned with inventories and sales taxes; to the person planning to operate his own farm, garage, television repair shop, beauty parlor, or store; and to the management of any business. Lack of proper records and the lack of understanding of records is one of the most frequent causes of business failure (Boynton, 1970, p. 12).

With the diversity of objectives for the many different groups affected by the bookkeeping and/or accounting processes, it is important for the classroom teacher to be aware of the types of activities that are being performed by entry-level employees in businesses. This study was designed to secure data concerning bookkeeping and/or accounting tasks that are being performed in the businesses of Utah.

Statement of the Problem

The problem of this study is that industry requirements for entry-level bookkeeping and/or accounting workers in the State of Utah are not available. It is very possible that content of the bookkeeping and/or accounting classes in secondary schools has not kept pace with the changing needs of industry. To develop and revise educational programs for entry-level bookkeeping and/or accounting jobs without the knowledge of job requirements leaves the educational community open for criticism from the taxpayer and from the participants of these programs.

Purpose of the Study

The purpose of this study was to compare bookkeeping and/or accounting tasks being performed by entry-level workers with bookkeeping and/or accounting tasks being taught in Utah secondary schools.

More specifically, the following objectives were accomplished:

1. Positions which required some knowledge of bookkeeping and/or accounting in selected Utah businesses were determined.
2. Entry-level positions which required some knowledge of bookkeeping and/or accounting were determined.
3. Bookkeeping and/or accounting tasks being taught in the secondary schools of Utah were determined.
4. A comparison of tasks being performed in entry-level positions requiring no more than high school training and the tasks being taught in the secondary schools of Utah was made.
5. Recommendations for curriculum revision were made based upon the findings of the study.

Importance of the Study

The education systems of the country must keep up with the rapidly changing society. Hall states "The

pressure of change is forcing the educational institutions to redefine their goals and change their methods of achieving these goals." (Hall, 1971). Pyper in a paper presented to the California Educational Research Association said "an increasing concern is being manifest by teachers, students and taxpayers for instruction that is more relevant, interesting, effective and efficient." (Pyper, 1971).

Lessinger expressed a more pessimistic view of the educational scene when he stated:

There is widespread agreement that something has gone wrong in American education. Too many students are leaving school without the basic skills needed for a productive life. Voters are rejecting requests for increased school taxes. Parents are demanding more voice in educational decisions...Too frequently educational managers attempt to explain their activities in terms of resources and processes used, rather than learning results achieved... A more sophisticated public is demanding that every Johnny can read and that he has been provided with the other basic skills necessary to employment and a useful life in a complex society. The public is demanding product reliability...and will no longer accept mere assertions of professional superiority (Lessinger, 1970, p. 52-53).

Educators must be aware of the public unrest as it relates to educational programs. Morris gives some insight into reasons for this unrest: "Criticism and reform movements are prevalent in today's society. Taxpayers are demanding to know 'what am I getting for my dollar'. The whole world is talking about the plight of public education. They see the advancements in

educational technology, and they are no longer remaining silent accepting the 'ideals' of educational authorities. They demand results--concrete ones." (Morris, 1970, p. 323-327).

Relevance of the curriculum to the modern society is supported by those interested in the improvement of education. Newell and Miller state, "Training then is to be provided...for all who can benefit from it, whether it be training for gainful employment at the pre-job, job-entry, or career advancement level." (Newell and Miller, 1973, p. 1) Maxwell and Winnett further state:

Relevance means that education is useful to the student. It provides him with experiences that will build useful knowledges and skills and shows him how to apply them in a useful manner. This requires that we know what the learner wants in life, what occupation he wishes to enter, the level of that occupation to which he aspires, the knowledges and skills needed to enter and progress in that occupation, and what trends are developing in that occupation. (Maxwell and Winnett, 1973, p. 282).

Washburn commented on the relevance of all education when he said:

We must make certain that at the end of a student's schooling we have provided the opportunity for that student to reach the next step in life--be it a job or further training for a job. There should be a career at the end of every educational endeavor of our young people. (Washburn, 1979, p. 79).

Business education is one of the most dynamic and everchanging fields in education. Woodward supports this statement when he says:

Business education, as an essential part of the preparation of youth for life and for living, is in the middle of the current stream of change. Business is dynamic and so must business education be, lest it becomes submerged. (Woodward, 1964, p. 1).

Business education must be sensitive to the ever-changing nature of the business community. Continuous up-dating and improvement of programs must take place in all facets of the business curriculum. Byrnside indicates support by saying:

The process of promoting and providing for continuing planned educational change is needed throughout our total educational system. However educators do not simply make changes in education programs on the basis of their personal bias. Neither do educators change educational programs without first making some value judgments relevant to the program. These value judgments are based upon data collected concerning existing programs in relationship to data indicating needed changes. (Byrnside, 1969, p. 1).

Jones comments on some of the alternatives available in affecting change:

The major opportunities for improving instructional patterns in business education in the secondary schools are related to the alternatives available in stating objectives, in organizing for instruction, and in the organization of instruction. The combination of objectives, school organization, and instructional organization will determine the effectiveness and efficiency of business education instructional strategies in the secondary school. (Jones, 1979, p. 8).

Bookkeeping is a well-established part of the secondary school program even though wide variations exist in the curriculum. Binnion and Thomas support this statement:

Not everyone agrees on the goals and objectives of the recordkeeping/bookkeeping/accounting course in high school. Many writers argue that the overall goal should be vocational, others stress the general education or personal-use point of view, and a few contend that the course should fit all molds. (Binnion and Thomas, 1978, p. 217).

The place of the bookkeeping and accounting function in business is wide and diverse. McGrew agrees with this in his article:

One of the major hallmarks of the accounting function over the years has been that accountants provide whatever financial information is required at that particular time or point in history. As demands have changed, accounting has changed (McGrew, 1969, p. 9).

With the changes in the bookkeeping and accounting function it has been difficult for the classroom teacher to keep up with the changes and to integrate the changes in the classroom. Mayne supports this in his article:

One of the difficulties faced by accounting teachers has been that of determining just what they should be achieving, and especially how to adapt to the changing duties of vocational positions. Two factors have made it difficult to determine specific content: First, the duties of various positions in this field range from routine recording requiring only on-the-job training to those requiring college degrees and even graduate work--from the routine record-keepers to certified public accountants. There

is no clear demarcation between the requirements for the various positions; likewise, there is no definite demarcation between the various levels of accounting programs offered by the schools. (Mayne, 1969, p. 18).

Iskra indicated that entry-level requirements for high school graduates seeking office employment show the need for segments of the bookkeeping and/or accounting curriculum rather than a complete knowledge of the subject. He further stated that bookkeeping and/or accounting courses have been traditionally geared to only bookkeeping and accounting careers, but jobs today are available in a wide range of office and distributive occupations so that there are many possibilities for emphasis if the bookkeeping and/or accounting curriculum is designed for maximum flexibility of choice. (Iskra, 1972, p. 160). In another quote in the article, Iskra states:

.....These educational needs can be met, however, only if accounting teachers are aware of the need for continuous updating of both materials and methodology through (1) knowledge of jobs available as may be determined by local employment departments; (2) data compiled by vocational specialists in the state departments of education; (3) funds available for program improvement under the Vocational Education Act; (4) professional workshops, seminars and panels; (5) current literature, including research studies. (Iskra, 1972, p. 160).

Buckley indicates that one of the most frequently voiced objections to business education has to do with the great difference between what is taught in the

classroom and what is actually done on the job (Buckley, 1972, p. 16). Bookkeeping and accounting teachers need to be aware of the changes that are taking place in the business arena if they are to effectively teach their students. Buckley further states that "we who teach bookkeeping and accounting have an obligation both to our students and their future employers to teach proficiently those tasks and duties performed by bookkeepers in order that the students will enter the labor market well-equipped with a marketable skill." (Buckley, 1972, p. 16). Swanson recognized the need for research in the content (knowledges and skills) of the bookkeeping/and/or accounting classes in the high school program. (Swanson, 1979, p. 1).

The need for this study can probably be best summarized by again quoting Buckley in his article:

Those of us who teach bookkeeping and accounting are confronted with an immediate challenge. Our course is taken by the student near the end of his high school program. Students frequently enroll in bookkeeping because they are interested in using the skills acquired there as the basis for their livelihood. Perhaps within a few days or weeks after leaving our classroom they will actually be putting to practical use the knowledge and skills acquired in our bookkeeping class. The question then becomes--did we teach the right things? Does he know what he should know in order to perform the tasks and duties assigned to him? We can best be assured of a positive answer to these questions if we are aware of what is presently required of bookkeepers in the area in which we live. We can gain useful insights through research and study, through personal work experience

as a bookkeeper, through student employment in the business office and through interviews with bookkeepers and office managers (Buckley, 1972, p. 16).

This study was designed to determine if the bookkeeping and/or accounting tasks and duties being performed by workers in the business environment are being taught in the public secondary schools of Utah. The occupational analysis has long been one of the major sources of information for training purposes. Erickson indicates that the major goal of any vocational program is to equip students for successful employment. He believes that to reach this goal, the occupational area has to be analyzed to determine the skills, knowledges, and attitudes that are required of the worker (Erickson, 1970, p. 208). This study used a job analysis procedure to analyze the tasks being performed by bookkeeping and/or accounting personnel in businesses in the State of Utah and compared these findings with the tasks being taught in bookkeeping and/or accounting classes in Utah public secondary schools. Based upon the findings of the study recommendations were made for curriculum revision.

Scope of the Study

This study was limited to a survey of bookkeeping and/or accounting workers in twenty-four businesses located in the Wasatch Front area in the State of Utah.

Three companies were selected in each of the eight Standard Industrial Classifications. Companies were chosen in the eight classifications to provide a diversity in the nature and type of firm but were not used in statistical analysis. The three companies in each classification were chosen according to size as determined by number of employees. These size groupings were: 1-19, 20-99 and over 100 employees. The companies were chosen by a random sampling process from the files of the State of Utah Department of Employment Security. Bookkeeping and/or accounting supervisors were interviewed and from these interviews entry-level employees were identified. Questionnaires were distributed to each employee and the researcher was available for questions as they were being completed.

Instructors of bookkeeping and/or accounting in Utah public secondary schools were surveyed. A list of teachers who were or had been teaching bookkeeping and/or accounting classes was secured from the State Specialist for Business and Office Occupations, Utah State Board for Vocational Education. Questionnaires were mailed to each of the teachers on the list. Each teacher was requested to complete the questionnaire if they were teaching bookkeeping and/or accounting classes in that school year. The teachers who were not teaching bookkeeping and/or accounting that year were requested to give the questionnaire to the teacher who was or to return the questionnaire.

Questionnaires were sent to 100 teachers in all public secondary schools in the State of Utah. Follow-up letters and postcards were mailed where necessary. Telephone followup calls were used to secure responses as well. Of the 100 questionnaires mailed, 77 were returned. Of these, 48 were usable in the study, 7 were partially completed and 22 indicated they were not teaching bookkeeping and/or accounting. Telephone calls to the 23 teachers not responding to the questionnaire were unsuccessful in receiving any completed questionnaires. The most common reason for not returning the questionnaire was time pressure.

No attempt was made in this study to delineate which of the tasks were accounting in nature and which were bookkeeping in nature. The study was concerned with what bookkeeping and/or accounting tasks were being performed by entry-level workers.

Definition of Terms

Bookkeeping

Bookkeeping means the recording of transactions or the recording phase of accounting.

Accounting

Accounting includes the design of accounting systems, preparation of financial statements, development of budgets, cost studies, audits, income tax work, computer applications

to accounting processes, and the analysis and interpretation of accounting information as an aid to making business decisions (Meigs, Mosich and Johnson, 1974, p. 3).

Function

A large segment of work performed by an individual. It is one of the distinct major activities involved in the work performed and it is composed of several related tasks (Melching and Borchert, 1973, p. 4).

Task

A unit of worker activity that is intermediate in specificity between a function and a procedural work step or action. It is a discrete unit of work performed by an individual; that is, the unit usually has a definite beginning and ending, and it is performed within a limited period of time (Melching and Borchert, 1973, p. 3).

Standard Industrial Classification

A classification system based on a firm's major income producing activity. This system was developed by the U.S. Office of Management and Budget. The eight classifications used in this study were: manufacturing; mining; contract construction; transportation, communications and utilities; wholesale and retail trade; finance, insurance and real estate; service and miscellaneous; and government.

Stratified random sample

This procedure involves dividing the population into classes or groups. Units included in each group are

relatively homogeneous with respect to the characteristics to be studied (Chao, 1974, p. 87-88). In this study a stratified random sample was taken in three size classifications (1-19, 20-99 and over 100 employees) and by eight Standard Industrial Classifications (manufacturing; mining; contract construction; transportation, communications and utilities; wholesale and retail trade; finance, insurance and real estate; service and miscellaneous; and government).

Entry-level position

A position which requires less than a two-year post-secondary training program but requires a high school diploma.

Secondary school

Publicly supported high schools in the State of Utah.

Frequency

This term when used in the questionnaire related to how often this task was performed on the job.

Performance

This term when used in the questionnaire related to the manner in which the employee performed his job. Was it performed with limited supervision or was the employee supervising others in performing the task.

Importance

This term when used in the questionnaire related to how important the knowledge of the task was for an entry-level employee.

Summary

The purpose of this study was to compare book-keeping and/or accounting tasks being performed by entry-level workers with bookkeeping and/or accounting tasks being taught in Utah secondary schools. Recommendations for curriculum revision were made based upon the findings of the study.

A review of related literature will be presented in Chapter II. Methods and procedures utilized in the study will be presented in Chapter III. The findings of the study will be presented in Chapter IV and the summary, conclusions and recommendations will be presented in Chapter V.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

Introduction

Perhaps the most fruitful beginning course in the business environment is in the field of accounting (Watson, 1966, p. 44). From the early beginnings of secondary education in this country up to the present, the study of bookkeeping and/or accounting has been considered one of the traditional business education courses. For years educators have thought that bookkeeping and/or accounting was one of the best ways to help young people learn three things: (1) how systematic records form the basis for decisions that businessmen, industrialists, and government officials must make; (2) how to acquire a marketable skill so that the individual can take a place in the business, industrial, or governmental affairs of the country; and (3) how to manage one's own personal business affairs so that he plans his income and expenditures wisely (Forkner, Swanson and Thompson, 1960, p. 1).

In this chapter a short history of bookkeeping and/or accounting education, a review of relevant research studies, references dealing with task analysis and a summary of the chapter are presented.

History of Bookkeeping and/or Accounting Education

Historians are not sure when the business of keeping records began but there is good evidence that it is over 4,000 years old. There are in many great museums of Europe and America specimens of Babylonian and Assyrian business records in the form of clay tablets that are thousands of years old. The Phoenicians, who were the greatest commercial people of ancient times, and who were given credit for inventing the alphabet, are supposed to have produced the alphabet for the purpose of keeping business records. This idea is strengthened by the fact that the Phoenicians were not a literary people (Nolan and Hayden, 1958, p. 97).

The Old Testament contains many stories of the activities of the Biblical people in which specific figures are given. The New Testament also indicates the need for records which was evidenced in the parable of the talents. Early Italian records mention of a deed in the year 831 which was witnessed by a man who calls himself an accountant. In the year 1225, bookkeeping was an established fact, since the chief magistrate of Milan had to render accounts every four months (Binion, 1957, p. 21).

In Greece and Rome, hundreds of records of sales made by the citizens of both countries have been discovered. Among these records have been wax tablets in

the ruins of Pompeii. The difficulties facing these people when working with accounting records can be realized when one learns that the Arabic numeral system replaced the Roman numeral system in the fourteenth century (Nolan and Hayden, 1958, p. 98).

There is much evidence that double-entry bookkeeping existed prior to 1494, but it was in this year that some of its essentials were first incorporated in a printed book. Paciolo, an Italian Franciscan monk, wrote a treatise on mathematics with a discussion of the existing bookkeeping procedures. The accounts he described fitted the needs of the merchants, traders, and bankers of the Middle Ages remarkably well. A system of debit-credit, embryonic double-entry bookkeeping was employed. A record of things owned and debts owed was kept. There was an accounting for receipts and disbursements. For the needs of transitory partnerships, a system of venture accounting was described (American Accounting Association, 1968, p. 9).

Double-entry bookkeeping was described in 1494 and developed in the 14th and 15th centuries by the North Italians. A section of the book published by Pacioli in Venice was devoted to a new method of keeping books. This new form was based upon an algebraic equation. Many of the procedures described in Pacioli's book had been used for several centuries but Pacioli is usually credited with being the father of accountancy because he was the first to publish these principles. Another Italian, Raugeo, actually wrote the first textbook on double-entry bookkeeping in 1458. It was not published, however, until 1573. Both Raugeo and Paciolo advocated the use of the daybook, the general journal, and the ledger (Binion, 1957, p. 21).

This double-entry method of keeping books spread from Italy to Holland and France, and then to England. English colonists brought the double-entry method with them to America and instruction in the method was offered early in our history (Nolan and Hayden, 1958, p. 98). As early as 1635, in the Plymouth Colony, pupils were taught to read, write, and cast accounts--while not strictly bookkeeping, casting accounts included determining the value of merchandise, tare and tret, exchange, and other subjects included today in business arithmetic and in bookkeeping and/or accounting (Binion, 1957, p. 20). Early records also indicate that during the 18th century there were many grammar schools, not necessarily Latin schools, in which arithmetic, handwriting and bookkeeping were taught.

A New England law of 1647 required the development of Latin Grammar Schools which were maintained primarily for boys. These schools were the secondary schools of the period. Their chief purpose was the preparation of boys for college. Most of the Latin Grammar Schools were town supported and were used to meet the needs of the population--young men hoping to become clergymen. Commercial demands resulted in the introduction of more practical subjects such as merchant's accounts, navigation, surveying, and high mathematics. The colleges of that day were primarily vocational schools and particular attention was

given to religion. When religious fervor decreased, new subjects such as bookkeeping, navigation and surveying were incorporated into the curriculum. Gradually the Latin Grammar School attempted to teach bookkeeping to try and keep up with the changing times (Binion, 1957, p. 54).

Bookkeeping and/or accounting was taught in many areas in the early 18th century. It was offered in Boston as early as 1709 by John Green. In 1710 there was a school in South Carolina authorized to teach writing, as well as the "Principles of vulgar arithmetic and merchant's accounts" (Tonne, Popham and Freeman, 1957, p. 211). It was offered in New York City in 1731 by George Brownell, and in Philadelphia in 1733 by Andrew Lamb. It would be probably safe to say that bookkeeping and/or accounting was taught before 1700 in New York and Boston. Both of these cities were primary trade centers and there must have been a demand for bookkeeping and/or accounting instruction. Even though there is some evidence of bookkeeping and/or accounting instruction at this time, the major form of instruction was informal apprenticeship training. As the number of employees was small, the proprietor was able to give effective on-the-job instructions (Nolan and Hayden, 1958, p. 102).

One of the earliest books to be extensively used in the colonies was John Mair's "Bookkeeping Methodized; a Methodical Treatise on Merchant Accounts, According to

the Italian Form." This book was published in Edinburgh, Scotland, in 1736, and subsequently appeared in six editions. The system advocated was very closely related to Pacioli's system of the 15th century. In the 6th Edition published in 1760, there appeared a chapter on the commerce and accounting methods of the Virginia and Maryland colonies (Binion, 1957, p. 53).

The successor to the Latin Grammar School was the American Academy which met the needs of American education until the Civil War. When Benjamin Franklin founded the famous Franklin Academies, bookkeeping was one of the required subjects for everyone. In 1800, the Philadelphia Academy offered writing, arithmetic and mercantile accounts in its Mathematics School (Forkner, Swanson and Thompson, 1960, p. 1).

In 1820, James A. Bennett, a bookkeeping teacher in New York City, published the "American System of Practical Bookkeeping Adopted to the Commerce of the United States and Exemplified in One Set of Books Kept by Double Entry; Designed for Schools." In this book, he advocated the principle that business transactions could be reduced to regular and systematic statements and, as such, could be taught as effectively in the classroom as in the office. He felt that schools should duplicate the actual practices of business. He brought into existence the idea that in teaching bookkeeping, you should make records of business

transactions from actual or facsimile business papers. He held that a knowledge of accounts would be of value to everyone, no matter what his trade or profession (Binion, 1957, p. 55).

With the establishment of the first public high school, the English Classical School for boys in Boston, in 1821, bookkeeping was added to the curriculum. One of the chief aims of the school was to prepare students for commercial careers (Tonne, Popham and Freeman, 1957, p. 212-213).

In 1827, the Massachusetts Legislature enacted a law requiring every city of five hundred or more families to establish a high school. Certain specified subjects, including bookkeeping had to be offered. With the advent of the modern high school, whose objectives were primarily vocational, bookkeeping was introduced. For many years since it was introduced into the public high school, it was the only business subject taught in the high school. With the growth of the size of business concerns, bookkeeping and/or accounting became a necessary skill in the control of business. Prior to the Civil War, when most businesses were small, a system of double-entry bookkeeping was not necessary. During the Civil War, when business flourished because of the need for supplying food and ammunitions to the armies, better records were needed. After the War, this growth of business continued and

resulted in a great demand for competent bookkeepers. This training was given in the high schools and the private business colleges.

In 1862, with the passage of the Morrill Act the teaching of business subjects was furthered. This act gave each state 30,000 acres of land for every representative it had in Congress for the purpose of establishing a college for instruction in agriculture, mechanical arts, and business. Bookkeeping and accounting were subjects that were stressed in the business curriculum.

With the growth of vocational education, another act was passed in 1917 called the Smith-Hughes Act. This act made Federal money available for the organization and maintenance of part-time schools and classes in order to give business training to employed persons. Provision was also made for the making of studies and reports on business jobs and their requirements, problems of administering vocational schools, and development of courses of study. Built into any of these acts were the provisions for instruction in bookkeeping and/or accounting.

This growth of the bookkeeping and/or accounting curriculum has continued until the present day. In 1948-1949, over 398,000 students were enrolled in elementary bookkeeping classes in high schools (U.S. Office of Education, 1951). This has increased to 430,000 in 1960 (Tonne, Popham and Freeman, 1965, p. 3).

Bookkeeping and/or accounting has had a long history and has become one of the traditional courses in the business education curriculum. This places second only to the course in beginning typewriting.

Throughout the years, educators have expressed a number of broad objectives for the bookkeeping and/or accounting class. Most prominent of the objectives was that of preparing students to become full-charge bookkeepers. However, in recent years concern has been expressed over this objective because of the changing job market. Tonne, Popham and Freeman relate the following:

A generation or more ago most bookkeeping in business was done by bookkeepers assisted by junior bookkeepers. This situation has changed. Now the recordkeeping is usually undertaken by ledger clerks; and in smaller offices much of the routine work is performed by a clerk, a stenographer, or even by the owner himself. Periodically an accountant, a professional worker visits the establishment and completes all or most of the process of closing books and preparing statements. Bookkeeping, which was once a semi-profession, now has become on the one hand a skilled occupation and at the upper level, a definite profession (Tonne, Popham and Freeman, 1957, p. 213-214).

More recently, Iskra wrote concerning bookkeeping and/or accounting employment opportunities and the implications for the training program. He said:

Accounting courses have been traditionally geared to only accounting careers, but jobs today are available in a wide range of office occupations so that there are many possibilities for emphasis if the accounting curriculum is designed for maximum flexibility of choice. For

example it is obvious that the stenography student need not take the entire accounting course to succeed, but stenographers will do a much better job if they at least have a basic understanding of the accounting vocabulary.

Secretarial and clerical jobs require many of the units of instruction included in the first quarter of accounting courses. The use figures, types of records, and verifying entries are valid training for these types of positions. The second quarter brings more jobs into the sphere of accounting. Eliminating adjusting entries but covering a complete accounting cycle would allow training for many other types of positions. Accounts receivable clerks, accounts payable clerks, billing clerks, cashiers, and credit clerks are examples of new position possibilities for students completing a one-semester accounting course with other related instruction. The second semester of accounting provides basic training for a very wide range of general clerical positions short of a full-charge bookkeeper, and if such units as automated accounting, payroll procedures, and income tax accounting were included, students could be trained for a still further variety of jobs requiring a knowledge of accounting principles (Iskra, 1972, p. 165).

Cook and Lanham in a retabulation of the NOBELS (New Office and Business Education Learning System) study of 4,498 basic tasks performed by office workers said:

"Numerical clerical records" is a classification of tasks that includes work usually performed in accounting departments of a business. The title includes various tasks related to processing accounts receivable and payable, credit, payroll, receipts, disbursements, and other financial transactions. The title also includes 110 tasks that require only computation or checking of numerical records or reports. "Numerical clerical records" appears to be a clearer designation of the group of tasks included than either "accounting" or "bookkeeping" would be (Cook and Lanham, 1970, p. 3).

Teachers of bookkeeping and accounting have an obligation both to the students and to future employers to teach proficiently those tasks and duties performed by bookkeepers in order that the students will enter the labor market well equipped with a marketable skill (Buckley, 1972, p. 16).

Bookkeeping and/or accounting is no longer confined only to reporting the gains or losses to the owners of a business. Computers have facilitated the production and analysis of a great bulk of information. This expansion of the scope of bookkeeping and/or accounting has resulted in the development of new concepts and procedures and the demand for new competencies. During the early years of the twentieth century the bookkeeper carried the full responsibility for the business and financial records of his employer. These bookkeepers started at the lowest level of employment with some basic bookkeeping education and advanced through on-the-job training. The bookkeeper had to be trained in all phases of accounting work. Over the years differences in various jobs in the accounting field have become sharper. At the highest level accounting has earned its place as a profession; but scores of job titles are used to describe bookkeeping and accounting work at semiprofessional, technician and clerical levels (Sapre and Perritt, 1975, p. 7).

Research Studies

There have been many studies concerned with bookkeeping and/or accounting instruction completed in the past few years. The nature and scope of this study deals with content and job opportunities in bookkeeping and/or accounting. Only studies pertaining to these two areas will be included in this review.

Herring and Devine studies

These two studies stand out as being very significant pieces of research in the area of bookkeeping and/or accounting. Herring (1950) wrote a compilation of research findings involving the teaching of bookkeeping and/or accounting up to the year 1950. Devine (1962) continued this type of study by compiling information concerning research studies from the years 1950 to 1960. In his findings, Devine attempted to summarize the studies completed during this period. From the data collected, he made a number of observations concerning this data. Concerning objectives, he observed that they had been given considerable amount of attention in the studies. He felt that this concern had been brought about due to the fact that at least half of the students enrolled in bookkeeping courses were not business majors. The bookkeeping enrollment is comprised of the following: business majors for whom bookkeeping is a requirement and whose primary interest is vocational and/or preparation for the study of accounting,

business majors who are taking bookkeeping for its related vocational use in their area such as secretarial students, and students from areas other than business who are taking bookkeeping for its personal-use value.

Devine stated that from the research studied that objectives should be based on the immediate and foreseeable future personal and occupational needs of the students, and consideration should be given to the needs of the community also. The course content of bookkeeping and/or accounting courses was determined by those served by these courses and by those nearest to these subjects. The businessmen who employ bookkeeping and/or accounting graduates are in a position to be of great assistance in determining appropriate course content. Teachers are in a position to make the greatest contribution to the content through their understanding of the learning process and methods of teaching bookkeeping and/or accounting. The suggestions of former students are very often reflected in the suggestions of employers. Suggestions of businessmen were considered important in the determination of the content for bookkeeping and/or accounting courses especially since a goal of bookkeeping and/or accounting instruction is to provide for future needs of business.

A portion of the research reported on was involved with determining the employment characteristics in the offices where former bookkeeping and/or accounting students

were employed. Devine noted that the number of research reports pertaining to duties and machines were large, whereas the number that pertained to job titles, requirements for employment, and bookkeeping and/or accounting deficiencies noted by businessmen were rather limited.

The duties performed depended to a great extent upon the size of the business (number of employees). A wide range of bookkeeping and/or accounting duties as well as other office duties were performed by the bookkeepers and accountants and included:

- Answering the telephone
- Computing percentages
- Filing
- Handling mail
- Handling petty cash
- Journalizing
- Keeping perpetual inventory records and taking physical inventory
- Maintaining records of fixed assets
- Making adjusting entries
- Making appointments and collections
- Making bank reconciliations and deposits
- Making closing entries
- Making trial balances
- Posting to ledgers
- Preparing comparative financial statements
- Preparing payroll records
- Preparing schedules of accounts receivable and accounts payable
- Preparing worksheets
- Setting up new ledger accounts
- Taking dictation
- Writing checks
- Writing letters (Devine, 1962, p. 114).

Devine indicated that positions in the small office appeared to require a more general group of duties including bookkeeping, accounting and routine office duties of a non-bookkeeping nature. Positions in business

employing many people tended to be more specific. The bookkeepers in the large businesses often performed the work of a segment of the bookkeeping cycle such as maintaining the accounts receivable or accounts payable records. In the large businesses the accountants performed accounting duties primarily and were not concerned with the routine clerical duties such as filing and answering the telephone.

Of interest to this study is Devine's summary of the requirements for employment. The level of education of the applicant was the primary requirement for all beginning positions. The large organization had definite procedures for determining the qualifications of the applicant, whereas the small organization did not utilize uniform procedures in employment practices. The research was concerned primarily with the requirements for beginning positions which high school and college bookkeeping and/or accounting graduates often obtained. For initial employment as bookkeepers and accountants, the prospective employees were usually required to have at least a high school education for bookkeeping positions and often a college education and/or a certified public accountant's certificate for positions as accountants. In some positions above recordkeeper, prior bookkeeping and/or accounting work experience was required.

Very few of the people performing bookkeeping duties in the small, family-operated business had bookkeeping

training. Members of the proprietor's family usually kept the books in these businesses. Elementary and advanced accounting courses were considered essential or important by several employers in the preparation of junior accountants.

Many of the bookkeepers had high school bookkeeping training which was felt to be satisfactory for some positions; however, employers preferred training beyond the high school level especially if opportunities for promotion existed. Many bookkeepers studied in business colleges, took correspondence courses, and enrolled in college night classes in order to improve their bookkeeping and accounting abilities and to qualify for more advanced jobs. High school bookkeeping graduates often started at recordkeeping positions and advanced to bookkeeping and accounting positions.

In completing the reporting of his findings, Devine summarized the research completed:

Most of the research was directed toward the utilization of the bookkeeping and accounting duties and practices as a basis for improving of the teaching of bookkeeping and accounting subjects at the high school and college levels. Both the bookkeeper and the accountant can expect to perform many office duties and operate common office machines in addition to their bookkeeping and accounting duties, especially in the smaller businesses. The bookkeepers employed in large organizations can expect to work with a segment of the accounting cycle such as accounts receivable or accounts payable. The beginning accountant may expect somewhat broader duties such as making entries in several books of original entry.

At least a high school education was desirable for bookkeeping applicants, and a college education in accounting was desirable for applicants for accounting positions. The greater the amount of education the greater were the opportunities for advancement to more responsible and rewarding positions. An annual accounting period was the most common in all businesses. Most of the businesses included in the research reports utilized outside experts in the preparation of income tax reports.

The larger organizations maintained complete records while the smaller ones did not always maintain adequate records or know the purposes for which records might be used in the best interests of the business. The profit and loss statement and the balance sheet were the most commonly prepared statements (Devine, 1962, p. 123).

Stoner study

The purpose of this study (Stoner, 1953) was to determine the various types of information which might be helpful in the organization and administration of a training program in retail accounting for small businesses. Stoner found a number of characteristics of small retail establishments which have relevance to this study. The businesses surveyed were predominately single proprietorship, averaged only 4.7 employees, and were operated by the owner. Many of the businesses operated on a credit basis but kept their books on the cash basis. Many of these firms used a single entry bookkeeping system. Elementary bookkeeping ranked first among the business courses taken by the businessmen but 80 percent of them were not satisfied with their present accounting system.

The responsibility of keeping the books was evenly divided between employee and employer. Although two-thirds of the stores did not prepare financial budgets, this responsibility was assumed by the proprietor and manager. Approximately half the firms had their profit and loss statements prepared by outside accounting services. Balance sheets were prepared outside by one-third, with one-fifth being done by the owners. Two-thirds of the businesses had outside accounting services compute their reports and income taxes. Stoner found that many routine clerical accounting activities were being performed by the proprietor and manager.

Nicks study

In this study (Nicks, 1954) 505 non-bookkeepers were surveyed to determine what bookkeeping activities were performed by office workers other than bookkeepers themselves. Nicks found that the bookkeeping activities of non-bookkeepers are isolated routine duties that can be carried out without a knowledge of the principles and theory of bookkeeping. One year of bookkeeping training has little affect on the bookkeeping activities of non-bookkeepers during their first year with a firm. A list of 59 bookkeeping activities was tabulated in the study. Nicks suggested that these activities should be emphasized in the training programs of non-bookkeepers. These activities were categorized into the following areas:

banks and checks; statements, bills, invoices, purchases; payroll and taxes; insurance; notes and interest; and a miscellaneous category. He felt that the training for non-bookkeeping workers should be the same whether it was for different sizes of businesses or for non-manufacturing firms. Secretaries experienced more bookkeeping routines than do non-bookkeepers in any other job classification. Nicks concluded that if the bookkeeping training of non-bookkeepers in the secondary school is to be built around the bookkeeping activities of the general office worker rather than around the work of the bookkeepers or accountants, one year of elementary bookkeeping cannot be justified.

Young study

This study (Young, 1954) involved bookkeeping duties performed by secretaries. He found that there were some differences in the bookkeeping and/or accounting activities performed by secretaries in different sizes of businesses. He listed bookkeeping and accounting duties that were performed most frequently by the secretaries as a whole. Some of these were: preparation of customer statements; making accounts receivable analyses; work with books of original entry; making credit investigations and collections; accounts receivable ledger posting; making sales analyses; working with installment sales records; general ledger posting; working with insurance records and collecting data for taxes.

Ernst study

The purpose of this study (Ernst, 1959) was to analyze the accounting practices of 141 accountants in Alva, Oklahoma, firms. She found that 50 percent of the firms were organized as single proprietorships; almost 25 percent of the firms were organized as corporations and 20 percent of the firms were organized as partnerships. The remaining firms were non-profit organizations. Various types of firms were reported in the study. The sales journal was used in one-third of the firms; the purchases journal was used in one-fourth of the firms and the general ledger was used in one-third of the firms. Closing entries were recorded in one-fourth of the firms. All of the firms reconciled the bank statement monthly. Payroll duties and required quarterly reports of withholding taxes were regularly made. One-third of the employees said formal preparation in accounting was essential; another one-third of the employees said formal preparation in accounting was helpful but not necessary.

Henderson study

In this study, Henderson (1960) considered some of the major claims being made for the value of the high school bookkeeping curriculum in light of pertinent research and to compare these claims with information gathered from

selected former high school business students. In this study he attempted to evaluate the curriculum by reviewing what former students were doing on the job. The performance of bookkeeping duties, the degree of performance of these duties, do the duties require a knowledge of double-entry bookkeeping theory and to what extent are former students making use of the bookkeeping skills learned in their personal life and social life were used to evaluate the curriculum.

Schenck study

In this study, Schenck (1965) attempted to determine the need for teaching bookkeeping by sending questionnaires to business education supervisors and teachers as well as to 300 business firms in the Washington, D.C. area. She found that most opportunities for the high school graduate with training in bookkeeping were in the positions of general clerk, clerk-typist, and stenographer. One year of high school bookkeeping was required or desired by most respondents of the business firms. Most positions classified as bookkeeping clerks, bookkeepers or assistant bookkeepers required higher education and/or experience.

Yonke study

In this study (Yonke, 1965) businessmen in small, medium and large businesses in Joliet, Illinois were interviewed to determine the employment status of

bookkeepers in that city. She found that a high school diploma was the minimum educational requirement for employment as a bookkeeper. She found that filing and typewriting were part of the duties performed in bookkeeping positions. She also found that employers were interested in general characteristics such as: ability to grasp and follow instructions, cooperation, personal appearance and grooming, health, thoroughness, efficiency, accuracy and honesty. Businessmen felt that willingness to learn was the most important trait to instill in students.

Thorstad study

In this study (Thorstad, 1965) an attempt was made to determine the bookkeeping practices and procedures which were currently being used in business and how they might effect future high school bookkeeping courses. This was done by surveying bookkeeping supervisors in selected businesses in the Minneapolis area. He found that women bookkeeping workers tend to out-number men who perform bookkeeping duties by four to one. He found that men tended to be hired for their promotional potential while women were selected for their clerical abilities. Some training in bookkeeping seemed to be a necessity for hiring men as bookkeepers. Some women were hired as bookkeepers with only high school training but for women experience appeared to be a substitute for post-high school training.

Kozoman study

In this study, Kozoman (1965) attempted to analyze the current objectives of the first year bookkeeping course and then tried to determine which of these objectives were held to be most important by selected bookkeeping instructors and school counselors. Based on his analysis, Kozoman concluded that the primary objective of bookkeeping is the preparation of office workers and bookkeepers. He found that the demand for high school graduates in bookkeeping is very small. He also concluded that the instructors and counselors are not aware of the initial and future post-high school activities of former bookkeeping students. He concluded that the average bookkeeping student has the ability and interest to comprehend bookkeeping, enrolls for a vocational purpose, and secures employment in a business occupation not necessarily in bookkeeping upon graduation from high school.

Clow study

Data for this study (Clow, 1967) was obtained from interviewing personnel directors or accounting heads in 14 firms and from 182 questionnaires completed by bookkeepers and accountants in these 14 firms. He found that most bookkeeping positions were held by females and most accounting positions were held by males. Only 23 percent of the bookkeepers completed post-high school bookkeeping

courses and 57 percent of them completed a one-year high school bookkeeping course. Men were preferred for the accounting positions while women were preferred for the bookkeeping positions. High school bookkeeping was required for most bookkeeping and accounting positions.

Shook study

In this study, Shook (1967) attempted to identify the qualifications desired of applicants for bookkeeping and accounting positions. He also attempted to identify the duties and practices of bookkeepers and accountants in selected manufacturing firms and report the reactions of the bookkeepers and personnel directors to the first-year course in high school bookkeeping. Shook reported that bookkeepers attributed their source of learning to perform bookkeeping duties to on-the-job training. He found that individuals applying for a bookkeeping position must be a high school graduate but that high school bookkeeping is not always a requirement for getting the job. The study also revealed that there is a need for those wanting bookkeeping positions to be familiar with automated data processing procedures. He indicated that applicants for professional bookkeeping positions should have at least two years of post-high school accounting and/or previous experience in bookkeeping.

Spanswick study

In this study (Spanswick, 1967) help-wanted ads were investigated to determine what jobs were available to a person with only one year of high school bookkeeping. Data was gathered through the use of two questionnaires: one questionnaire was used to determine the nature of the activities performed in such jobs and the other to collect information on the reactions of employees and employers to a one year course in high school bookkeeping as preparation for a bookkeeping position. Spanswick concluded that the majority of firms advertising bookkeeping jobs were not willing to hire persons with only one year of high school bookkeeping unless those persons had experience in bookkeeping work. Those who did secure employment usually found it with a firm that was using a double-entry bookkeeping system and prepared financial statements on the accrual basis. He further concluded that employers were not convinced that the usual one year in high school bookkeeping is effective in preparing persons for manual bookkeeping jobs. Employers commented that the experiences in high school bookkeeping were not realistic. Experienced workers stated that their experience rather than their bookkeeping courses prepared them to handle the bookkeeping activities more frequently performed in their work.

Ozzello study

In this study, Ozzello (1967) analyzed accounting activities performed by technical accountants in order to arrive

at a set of criteria related to job activities that could be employed in appraising the appropriateness of a terminal accounting program in community colleges or other post-high school educational institutions. Ozzello attempted to determine the current and projected need for technical accountants, establish a listing of accounting-type activities performed by technical accountants, determine according to size of firm if there are clusters of accounting-type activities performed by technical accountants, establish from the list of accounting type activities selected criteria that could be used to assist in appraising of technical accounting programs and translate the selected job activity data into a set of evaluation criterion that an institution could employ to assist in appraising its post-high school terminal accounting programs.

His procedures involved surveying the durable goods manufacturing industry's current and projected need for technical accountants. He conducted interviews with technical accountants to identify their accounting type job activities. He then analyzed the responses to establish a list of accounting activities performed and translated them into a set of "training need" criteria that could be used to assist in appraising the adequacy of the accounting courses in post-high school terminal accounting programs.

The list of accounting-type activities was broken down into ten categories with supportive sub-categories which were used on his questionnaire. The ten categories were:

- Financial reports and schedules
- Financial statement analysis
- Machines used
- Working papers used
- Journals maintained
- Ledgers maintained
- To record (post)
- To initiate or prepare
- To maintain, analyze or perform
- Do computations for (Ozzello, 1967, p. 185-192).

Ozzello concluded that the list of accounting activities in his questionnaire can be identified with the activities performed by technical accountants. He established a profile of the identifiable accounting-type activities performed most often by technical accountants and this profile was potentially useful as a guide in the determination of content for terminal accounting courses designed for initial training, in-service training or upgrading of technical accounting employees. He also concluded that the technical accountant does perform some activities which have been considered duties of a bookkeeper as well as some of which have been considered duties of a baccalaureate degree accountant, but can basically be considered as a position somewhere in between the two. He also concluded that activities are not completely common to all technical accounting positions but do tend to cluster according to size of firm (Ozzello, 1967, p. 146-147).

Stelter study

In this study, Stelter (1968) sought to determine the duties performed by bookkeepers and accountants in rural business, the qualifications needed to perform these duties and plans for additional equipment to be installed in the near future. He found that employment as a bookkeeper or as an office worker with partial responsibility for bookkeeping is possible for many high school graduates in rural Minnesota. Two-thirds of the employers would consider hiring a bookkeeping worker after graduation from high school. One-third of the firms hiring employees for bookkeeping duties replaced at least one employee in the last year, and one-tenth of the firms added one bookkeeping position. Previous experience was necessary in only one-third of the firms.

He concluded that a high school education is adequate for employment as a bookkeeper but not as an accountant. Approximately two-thirds of the bookkeepers had received no education beyond high school. Most of the accounting employees had attended some educational institution beyond high school. Formal education in bookkeeping and accounting is helpful and desirable but not necessary to perform most of the duties of a bookkeeper. Only one-third of the employers in rural Minnesota firms stated that one year of high school bookkeeping was necessary for employment in their firms. More than one-half of the

bookkeepers in all cities attributed on-the-job experience as the source of their ability to perform all but 5 of the 80 duties listed on the questionnaire.

Stelter also found that not all of the duties presented on the questionnaire need be taught in the first year of high school bookkeeping. Of the 46 least performed duties, 8 were in the preparation of financial statements and related schedules, 18 were special entries journalized and 12 were related to the use of bookkeeping machines and data processing equipment. The first year of high school bookkeeping can be taught the same in all sizes of cities in rural Minnesota to fulfill the needs of all types of firms except banking. He found that an extensive use of data processing equipment for bookkeeping or accounting purposes in rural Minnesota business firms is more than two years away.

Linnaeus study

In this study (Linnaeus, 1968) an attempt was made to identify the characteristics and scope and general methodology of a comprehensive high school bookkeeping and accounting program. A list of 47 principles and practices from 9 areas was devised and schools selected by the National Association of Business Teacher Educators was asked to indicate high schools in their areas which met the criterion established.

The author came up with the following conclusions on the present development of high school bookkeeping and accounting programs striving for comprehensiveness. He indicated that few of the 72 outstanding high school programs identified were completely comprehensive. Generally high school bookkeeping and accounting programs building for comprehensiveness make many efforts in the areas of objectives, courses or levels of instruction, content of courses, grade placement of courses, materials and facilities for instruction and teacher preparation. This would seem to indicate that business education programs are concerned with the objectives and skills being taught in their programs.

Petro study

Petro (1969) attempted to establish a set of instructional objectives for education in technical accounting which could provide the basis for designing the learning structures of instructional programs for prospective accounting technicians. Even though this study was designed for instruction in the post-secondary environment, the study provided a model for curriculum development in accounting that could be related to any level of education. His specific objectives were to (1) demonstrate the feasibility of a given model for the derivation of instructional objectives of technical accounting programs and (2) the establishment of a set

of instructional objectives which describe desired student behaviour and which would be suggestive of appropriate learning sequences for the fulfillment of the specific objectives of technical accounting programs.

His methods were based on information established in the Ozzello study (Ozzello, 1967) discussed previously. He secured a list of business activities performed by accounting technicians. These were grouped into nine functional areas:

- Making financial reports and schedules
- Analyzing financial statements and schedules
- Maintaining ledgers
- Maintaining journals
- Preparing and initiating data
- Recording or posting data
- Making and using working papers
- Nonclassified maintaining, analyzing or performing activities
- Doing specific mathematical computations (Petro, 1969, p. 37).

Subsets of these activities were used in preparing the objectives. The second phase was to derive and classify objectives. The concluding phase was to verify the usefulness of the instructional objectives by polling a jury panel of community college accounting teachers.

The author found 35 task demand statements which were placed in flow charts to show the hierarchial order of each of the instructional objectives. He concluded that statements which describe job requirements of accounting technicians can serve as the basis for deriving instructional objectives which, in turn, can accurately

specify the behavior a student should be capable of demonstrating in the classroom to meet the requirements of the job. He also concluded that the derived instructional objectives which describe desired student behavior and suggestions of appropriate sequences for the learning structure comprising the instructional program for accounting technicians were realistic.

This study presented a model for developing instructional objectives and this model is based upon having job related competencies already available for the job.

Amelio study

Amelio (1969) reported on research completed as a class project. The purpose of the research was to study what beginning bookkeeping workers who kept records need to know about bookkeeping according to public accountants who audit their records and with the results suggest change for improving the high school courses in bookkeeping. There were many interesting conclusions involving the content of the bookkeeping class. He concluded that teaching the financial statements and worksheet for mastery would appear unnecessary according to public accountants. Students should be able to prepare schedules of accounts receivable and accounts payable as well as bank reconciliation statements and deposits. Beginning bookkeeping workers should be able to do some kind of payroll, journalize--especially in the special journals,

and post to some form of subsidiary ledger. These workers should be proficient on the 10-key adding machine, rotary calculator and typewriter.

Moon study

Moon (1970) completed a study designed to determine the activities and job functions of bookkeepers who keep a complete set of books. He interviewed 100 full-charge bookkeepers to collect data for the study. He found that there are full-charge bookkeeping jobs available but usually only to those bookkeepers with previous experience. He concluded that most full-charge bookkeepers take bookkeeping and accounting beyond high school level, but high school bookkeeping along with experience was sufficient training for a full-charge bookkeeping position. Most businesses with full-charge bookkeepers keep books on an accrual basis. The firms with full-charge bookkeepers are not limited to small businesses. Moon also concluded that high school bookkeeping is not realistic without some work experience to relate the theory and principles to practice. Such items as inventories and taxes are handled by some outside service group in many businesses. Almost all the bookkeepers were using typewriters and adding machines and approximately three-quarters were using calculators.

Luxner study

Luxner (1970) completed a study that attempted to determine the factors which affect the entry-level employability of vocational bookkeeping students. By following up on vocational bookkeeping graduates, surveying business and industry and analyzing help wanted advertisements, she attempted to determine the affect on entry-level employability of such factors as: academic achievement and ability; supplemental business skills; personal factors; career objectives; and conditions in the labor market. She found that of those vocational bookkeeping graduates who were actively seeking employment only 15 percent found employment that was primarily bookkeeping in nature.

From the findings of the study Luxner made some very strong recommendations concerning bookkeeping in the high school program. As a vocational subject, advanced bookkeeping taught in the traditional method which includes the making of complicated entries, such as closing and adjusting entries, and the manual completion of partnership and corporation practice sets is indefensible. She also concluded that the study of two years of manual bookkeeping at the secondary level in and of itself meets neither the job requirements for accounting clerks or for accountants. Preparation for an accounting career should be deferred until the post-graduate level. Vocational bookkeeping training should be augmented by an intensive

clerical training program emphasizing the fundamental business skills in order to prepare the students to get the entry-level requirements for general clerical positions.

Buckley study

Buckley (1971) attempted to determine the availability of employment in the areas of bookkeeping, secretarial, clerical and data processing positions that require a knowledge of high school bookkeeping but no higher education or previous work experience. He questioned personnel directors from firms of all sizes in the Atlanta area. He found that the minimum educational requirement of office workers is high school graduation. He found that 84 percent of the firms had bookkeeping positions for which high school graduates might qualify. Approximately half of the firms which employed high school graduates as bookkeepers did not require high school bookkeeping if the prospective employee had previous work experience. Half of the firms stated that they require previous bookkeeping experience for some of their bookkeeping positions. He found that it was not essential for secretarial, clerical or data processing workers to have a knowledge of bookkeeping in most firms.

He found that in preparing for a career as a bookkeeper, the most important high school business subjects are bookkeeping, business mathematics and office machines. For a secretary the most important subjects are typewriting,

shorthand and office practice. For a clerical worker, typewriting, office practice and office machines. For a data processing worker, introduction to data processing, keypunch and business mathematics.

Buckley concluded that most businesses have bookkeeping positions for which they will employ high school graduates provided they have taken a bookkeeping course or have work experience as a bookkeeper. He also concluded that in most firms it is not essential for a secretary, clerical worker or data processing worker to have a knowledge of bookkeeping.

Kelly study

Kelly (1971) completed a study that attempted to identify and analyze the tasks performed, the personal characteristics and the educational background of semi-professional accountants in Rochester and Syracuse, New York. The study was involved with accountants who performed accounting related work at the present time, one who was in an accounting related position which required post-secondary education but less than a baccalaureate degree and one who had been in an accounting related position for a period of time sufficient that he could be considered for promotion.

He found in this study that semi-professional accountants are involved in a wide spectrum of tasks and functions. He found that there appears to be no clustering

of tasks with different types of businesses. He also found that many of the semi-professional accountants were business administration majors rather than accounting majors. Although this study does not directly relate to the research being undertaken, the fact that there is another level of accounting has implications for the high school graduate in bookkeeping.

Calvert study

Calvert (1971) reported on a questionnaire sent to 50 businesses in New Jersey pertaining to bookkeeping positions for beginning workers. Employers were asked to choose categories of questions as applicable to their business. They were asked to choose tasks performed, characteristics of employees, functions employees should be able to handle, office machines and information about hiring and advancing in their positions. She found that the majority of beginning positions were of a clerical nature and they needed to be aware of data processing concepts. From the results of the study she raised the question as to how much information in the current textbooks is relative to what business wants and expects of the beginning bookkeeping employee.

Schmidt study

Schmidt (1971) reported on research affecting high school accounting, bookkeeping and recordkeeping. She

reported that the greatest number of studies were concerned with either methods and media of teaching or with employers' job requirements. She concluded that the results of studies with the purpose of determining employers' job requirements still leave open the question of whether or not the present one-year bookkeeping courses give students vocational competency. From her survey of current research she concluded that massive, coordinated research projects in accounting, bookkeeping and record-keeping are needed. Changes in the field are here today and must be recognized by all who are concerned with the teaching of high school accounting, bookkeeping and recordkeeping.

NOBELS research

A massive research effort being undertaken across the country is very pertinent to this study. A series of research projects have been undertaken under a project called "New Office and Business Education Learning Systems" NOBELS (1971). Erickson (1971) interviewed 300 office workers and their supervisors in the Los Angeles area to identify and analyze those job components which could be considered basic to most beginning and intermediate levels of office work; and to consider the implications of those findings for the business education curriculum. Ten basic components of beginning to intermediate level office work

were identified. One of these was "Checking, Computing and Verifying." He found that "Checking, Computing and Verifying" was a basic component of 47 percent of the jobs studied and it occurred as a supportive activity in 6 percent of the other jobs. Erickson concluded that the content of courses, including bookkeeping, may need to be modified somewhat to include materials relevant to the needs of beginning and intermediate level office workers. The bookkeeping program needs to be modified to include more evaluation of accounts as well as an analysis of the basic relationships of bookkeeping and accounting principles to automated data processing equipment.

Lanham, Lanham, Herschelmann and Cook (1972) continued with another portion of the NOBELS project. The objectives of their portion of the study was to determine a framework for analyzing current and emerging office tasks. They attempted to isolate trends and concepts from emerging office occupations and practices and convert these to performance tasks. As part of this section they developed a sampling design and a training program for collecting data. After collecting the data it was analyzed and they then reported a master list of performance tasks. Volumes of information are available from this report concerning bookkeeping and/or accounting tasks. The area called "Numerical Clerical Records" contains functions concerning accounts receivable, accounts payable, payroll, computing

and checking, receipts, financial entries, cost accounting and disbursements. For each of these areas, the authors attempted to prepare task sheets involving the activities performed in each of these areas. As this massive research effort is brought to a conclusion and the many parts of the study are brought together, there will be probably emerge a great deal of information for the bookkeeping and/or accounting curriculum.

Smiley study

Smiley (1972) attempted to identify concepts included in the subject matter of the first-year courses by examining both first-year high school and post-secondary accounting textbooks. A list of 89 concepts was subsequently developed and these were mailed to a jury of experts who were asked to validate the concepts and to indicate their importance and the level of schooling on which they should be presented. The jury identified 40 concepts that should be taught on the high school level and a rank correlation was computed for the jury of experts and high school teachers who were also questioned. The correlation showed significant agreement between the jury and the teachers.

West study

One of the more important studies in recent years is the survey of bookkeeping job activities completed by West (1972). In this study, information supplied by

employee questionnaires and by interviews of accounting supervisors in industry was used in demonstrating that prevailing high school bookkeeping instruction goes far beyond what employers want from beginning employees and far beyond what beginners need. He found that previous school training was a minority requirement for initial employment, and the employers of small firm's bookkeepers appear to hire such persons from among those who have gained experience elsewhere, not new high school graduates.

The beginner's job duties are very narrow, only half the time resting on double-entry concepts; journal and ledger work is largely done by experienced employees; and hardly any beginners have trial balance, account adjustment, or comparable higher order duties. He also found that even those with high school training report on-the-job learning rather than learning at school helped them learn their job duties. The job duties and responsibilities of those with no school training in bookkeeping are indistinguishable from those with only high school training. More generally, job responsibility and advancement depend heavily on work experience, post-high school education, and general ability--not on high school bookkeeping instruction. The recordkeeping curriculum is especially nonfunctional for bookkeeping employment. He found that computerization prevails among the large

employers who account for most big city job openings, and its effects are to reduce and even to remove the need to understand bookkeeping concepts; in addition, the enormous variety of computerized record forms little resemble those of school instruction, and there are important variations in school and job bookkeeping terminology. He made a recommendation that high school bookkeeping classes should more closely resemble the entry-level job duties.

Solomon study

Solomon (1972) completed a study to determine the areas where differences exist among practitioners and educators regarding their perceptions of the aims of accounting education at the college level. Even though this study was designed for the professional level of accounting, there are some findings and conclusions that are relevant to the present study. He found that there was a difference in the opinions of public accountants and educators concerning the college background necessary for beginners in public accounting. A conclusion made by Solomon indicated that changes in accounting practice have taken place slowly, and educators have made few major revisions in their accounting programs. Practitioners and educators stated that concepts of accounting rather than the skills that are needed to function in practice should be emphasized in college courses.

Solomon made a recommendation concerning the introductory accounting course at the college level that has implications for the bookkeeping and/or accounting course at the high school level. He stated that the students should learn to perceive accounting as a means of communicating information related to planning, analyzing and reporting activities in various areas of society in addition to business. Future accountants must become more concerned about the substance of the information they are supplying to users of reports than with the form of their statements. This would imply a certain level of training necessary at the post-secondary level.

McKitrick study

McKitrick (1973) developed a model for training accounting clerks based upon a procedure deriving information from task analysis of representative accounting workers, studies of research and a series of in-depth interviews with representatives of business and immediate supervisors of accounting clerks to determine job requirements, employment practices, special needs and future trends. He concluded:

To prepare instructional materials for training specialized accounting clerks, teachers must visit offices and make task analyses of these businesses. Only in this way can educators develop those materials needed to train high school pupils to perform specialized clerical functions. Local businessmen favor this type of instruction because they find that beginning employees who

have completed models similar to those described in this article will not need extensive on-the-job training before they become productive workers (McKittrick, 1974, p. 45).

Stirewalt study

Stirewalt (1973) collected data concerning controversial issues in the teaching of bookkeeping. The 53 issues listed involve all phases of the teaching of bookkeeping at the secondary level. Only those issues that are related to this study have been reported on. The educators surveyed indicated that the technical school should provide the students initial job competency as an office worker in bookkeeping. They felt the primary objective at the secondary level should be a combination of vocational and personal use objectives with emphasis on vocational objectives. They felt the content of the first-year bookkeeping class should be built around the activities of the bookkeeper. The public secondary school should provide the student initial job competency as an office worker in bookkeeping. A majority of the respondents indicated that the primary objective of the second-year bookkeeping course at the secondary level is initial job competency as a bookkeeper. They further stated that the objective of second-year bookkeeping is a combination of vocational and personal-use objectives with emphasis on vocational objectives.

The author concluded that there could be many subjective interpretations of the respondents' opinions.

However, to make any subjective interpretations of the responses in terms of "truths" would be conjecture. He recommends that:

Business educators responsible for improving bookkeeping instruction must be aware of current issues and opinions on those issues. But knowing what controversy exists is not enough. Extensive research to determine the best answer to the issues in bookkeeping instruction should be undertaken; and the proven best solutions to issues must be taught and publicized to the secondary school bookkeeping teachers, college bookkeeping methodology teachers, state and local supervisors of business education, and bookkeeping textbook authors (Stirewalt, 1973, p. 67).

Gruenwald study

Gruenwald (1973) surveyed 60 selected businesses in the Los Angeles, California area to determine the most commonly performed activities accomplished by entry-level bookkeeping and/or accounting clerks and general office clerks. She found the following tasks as the most commonly performed activities in their order of frequency:

- Compute percentages
- Post to ledgers
- Make original entries
- Work with accounts payable ledgers
- Work with accounts receivable ledgers
- Prepare supporting schedules
- Reconcile bank statements
- Prepare payroll
- Keep withholding and FICA tax records
- Compute payroll taxes
- Work with petty cash fund
- Maintain records on fixed assets

She concluded that these skills must be taught in the high school bookkeeping and/or accounting class to adequately train students for entry-level positions.

Harris study

Harris (1975) tried to identify the competencies required of semi-professional accountants. He determined job titles for which employees with less than a BS degree would be hired and then determined the specific tasks performed on the job by these accountants. In his investigation he tried to determine the frequency with which the tasks were performed, those tasks required for initial employment and accounting skills learned on the job. A questionnaire of 229 accounting type activities was developed from current textbooks in the accounting field and reviewed by a jury of accounting supervisors, accounting educators and CPA's. Data concerning the 229 accounting activities performed were obtained from 105 randomly selected accounting supervisors.

He found that most firms have a position that could be called a semi-professional accountant and that there are specific tasks performed by these people. He found that few accounting skills are expected to be learned on the job and that graduates of accounting programs should have a knowledge of accounting activities performed by computers. Even though this study was designed to secure information about semi-professional accountants, many of the findings are valid for the high school curriculum.

Schillak study

Schillak (1975) reviewed the job tasks of individuals employed in financial accounting systems of selected

businesses in Wisconsin. One of the major purposes of the study was to evaluate data concerning the bookkeeping and/or accounting job tasks performed by individuals in selected businesses. These tasks were examined to find the extent to which the computer has affected the financial accounting system, the organizational structure, and the employees job in the accounting department.

He found that handwritten recording of financial data was performed primarily by non-supervisory personnel. He found that non-supervisory personnel spent the greatest amount of working time performing mathematical calculations with the aid of keyboard entry devices. On-the-job training according to supervisory personnel and high school training according to non-supervisory personnel was the best place to learn these skills. He concluded that computer-oriented accounting systems do require many of the basic skills taught in the traditional bookkeeping and/or accounting programs; however the manual recording of debit/credit entries in books of original entry has been replaced by mechanical and/or computer applications.

Stierwalt study

Stierwalt (1975) attempted to determine what constitutes a valid accounting curriculum. Does the present accounting curriculum provide for the concepts, skills, techniques and competencies deemed necessary in a desirable accounting curriculum? The Delphi technique was used to

establish the most important objectives to be included in the curriculum. Using the list of objectives derived from this technique, graduates of the accounting program were polled to see if they felt the program had provided these skills for them.

Donnel study

Donnel (1976) attempted to determine if selected skills, knowledges and attitudes Wyoming employers indicated job-entry high school graduates performed in bookkeeping and/or accounting positions were the same as those that the bookkeeping and/or accounting teachers felt were important. Survey instruments were given to employers and teachers. She concluded that all knowledge taught in bookkeeping and/or accounting courses is not used on the job by entry-level high school graduates. There should be closer correlation between the job skills that a student learns on the job and those that a student learns prior to job employment. The importance of job-related skills indicated by teachers seems to be borne out by the wide use of these skills by entry-level employees. She also concluded that the demand for bookkeeping and/or accounting entry-level employees is relatively small. She recommended that bookkeeping and/or accounting course content be evaluated in light of the needs of the business community.

Musselman study

An interesting study by Musselman (1976) attempted to determine whether entry-level employee's scores on a standardized bookkeeping test correlated with supervisor's ratings of job performance. He concluded that there was no significant difference in the mean employer ratings of the workers who studied bookkeeping and/or accounting and those who had not studied bookkeeping and/or accounting.

Reap study

Reap (1976) attempted to identify the discrepancy between work and training programs in the accounting area. She tried to identify job tasks that were being performed by beginning accounting and bookkeeping workers, what job tasks were included in the conventional high school accounting and/or bookkeeping program and to what extent do the conventional high school accounting and/or bookkeeping curriculum include and prioritize these identified tasks. She made the assumption that the curriculum is determined by textbooks used in the class. Tasks were selected from the NOBELS (New Office and Business Education Learning System). Common high school textbooks were analyzed to compile a list of job tasks included in each text. The two lists of tasks were compared. She found that there was no significant relationship when statistical applications were applied to the two lists.

Of the 150 job tasks on the list representing real work only 36 of these could be found in the textbooks representing the high school curriculum. Only 66 percent of the textbook volume was specific to the extent that content could be identified as fitting into a generalized accounting category. She found that 52 percent of textbook volume contained none of the job tasks taken from the list representing real work.

Reap concluded that many of the tasks being presented in the high school textbooks had little relationship to what was being performed on the job. The job tasks of the beginning worker were more concerned with segments of the accounting cycle than with tasks requiring understanding of the whole cycle. Tasks in the books have little relationship to what beginning workers are doing.

Schroder study

Schroder (1977), utilizing lists of bookkeeping and/or accounting competencies acquired from other studies, asked teachers to respond to whether the tasks should not be included in courses, just introduced, developed or taught to a proficiency level. The purpose of the study was to articulate between secondary and post-secondary levels. He found that there was a wide range of competency levels achieved by students completing one or two credits of bookkeeping and/or accounting in high schools. He also found a wide variety of terminology used in referring to competencies, tasks, steps, etc.

Task Analysis

Since this study is involved with a method of task analysis, following is a brief compilation of references involving the process of task analysis. Riccobono and Cunningham in an introduction to their study said:

Since the turn of the century, the rate of technological growth in the United States has been staggering. The impact of this technology has been felt by every segment of the population and has permeated every sphere of activity. Not the least affected by this technological advance is the field of occupational education. Today's educators are faced with the challenge of preparing individuals for a world of work which is only vaguely defined and in a constant state of transition. Vocational and technical curricula designed for specific occupations do not provide the individual with the flexibility required in this situation, the ability to adapt to rapidly changing work demands. Furthermore, there is increasing recognition of the need for occupationally related education which could not feasibly be geared to specific occupations. It seems apparent, therefore, that future occupational curricula must be based on a comprehensive taxonomy of work, rather than on *ad hoc* studies (and, sometimes impressions and opinions) of specific jobs and occupations (Riccobono and Cunningham, 1971).

In 1944, the War Manpower Commission, Division of Occupational Analysis provided the following definition of job analysis:

It is the process of determining, by observation and study, and reporting pertinent information relating to the nature of a specific job. It is the determination of tasks which comprise the job and of the skills, knowledges, abilities, and responsibilities required of the worker for successful performance (War Manpower Commission, 1944).

Gagne developed a much more technical definition of task analysis in the introduction to a section on Task Description and Analysis:

Once it is known what men will do in the system, it is evident that the system psychologist will be required to determine what human capabilities are necessary. He therefore undertakes task analysis. By this is meant that he makes inferences, based upon knowledge of the nature of human functioning, concerning what kinds of ability, skills, and knowledges are required in order for a human being to carry out the specified task. The result of task analysis provides the means for decisions about those individual qualities which can be selected, the kinds of performances which can be supported by job aids, and a firm basis for the design of individual and team training programs. In addition they provide immediate definitions of the various human performances required and suggest the measures which will have to be applied to these performances in the assessment of human capabilities (Gagne, 1965, p. 186).

Miller in the same book gave the following definition of task analysis:

Task analysis is a process whose results provide data about human functions, which in turn are used to determine the characteristics of job aids, training programs and the assessment of performances of the system and its components.... It is the systematic study of the behavioral requirements of tasks (Miller, 1965, p. 187).

A number of sources have delved into the nature of the job analysis process. The War Commission previously cited indicated that there are three parts to the analysis:

Basically, there are but 3 parts to the analysis of any job: (1) the job must be completely and accurately identified; (2) the tasks of the job must be completely and accurately described; (3) the requirements the job makes upon the worker for successful performance must be indicated...the second of these 3 parts is

outstandingly important--the complete and accurate describing of the job tasks. Without this the rest of the analysis lacks meaning (War Manpower Commission, 1944, p. 1).

Otis and Leukart indicated that job analysis in industry falls into two general classifications:

The analysis of jobs in industry today falls into two general classifications: (1) job analysis to develop information for personnel operations, and (2) time and motion studies and methods analysis for engineering purposes (Otis and Leukart, 1949, p. 177).

Lanham felt that certain basic decisions needed to be made when a job analysis was to be undertaken:

Job analysis is a time-consuming and difficult task. If it is to be expedited and carried out successfully, certain basic decisions and plans must be made in advance of the actual conduct of the job analysis. They may be classified into 5 major divisions:

1. The determination of the method to use in securing job facts.
2. The selection of the personnel responsible for securing job facts.
3. The selection of the personnel responsible for giving job facts.
4. The determination of the type of information to secure.
5. The preparation of the personnel responsible for using job facts (Lanham, 1955, p. 124).

The Manpower Administration of the United States Department of Labor published a booklet called the "Handbook for Analyzing Jobs" in which it suggests that current and comprehensive information about jobs and worker requirements can be acquired for present and future programs concerned with the development and utilization of manpower needs and potential. The following is some of

the pertinent information and techniques suggested in the manual:

In the U.S. Training and Employment Service, job analysis involves a systematic study of the worker in terms of:

- *What the worker does in relation to data, people, and things (Worker Functions)
- *The methodologies and techniques employed (Work Fields)
- *The machines, tools, equipment, and work aids used (MTEWA)
- *The materials, products, subject matter or services which result (MPSMS)
- *The traits required of the worker (Worker Traits) (United States Department of Labor, 1972, p. 1)

In modern usage, the word "job" has different meanings depending on how, when, or by whom it is used. Moreover, job is often used interchangeably with the words "position" and "task". To eliminate this confusion and to clarify terms, the U.S. Training and Employment Service has developed the following definitions for use in job analysis:

1. Element is the smallest step into which it is practicable to subdivide any work activity without analyzing separate motions, movements, and mental processes involved.
2. Task is one or more elements and is one of the distinct activities that constitute logical and necessary steps in the performance of work by the worker. A task is created whenever human effort, physical or mental, is exerted to accomplish a specific purpose.
3. Position is a collection of tasks constituting the total work assignment of a single worker. There are as many positions as there are workers in the country.

4. Job is a group of positions which are identical with respect to their major or significant tasks and sufficiently alike to justify their being covered by a single analysis. There may be one or many persons employed in the same job (p. 3)

The first step in a job analysis study is for the analyst to become familiar with the technologies of the jobs and characteristics of the industry to be studied (p. 11).

Whenever possible, arrangements should be made so that the following are available to the analyst prior to the actual analysis of jobs: (1) an orientation tour of the establishment; (2) introductions to department heads and supervisors with whom he will deal during the study; and (3) a list of establishment job titles, together with an indication of the number of men and women employed in each job (p. 12).

Obtaining information by observation-interview involves analyzing jobs by observing workers performing their jobs and interviewing workers, supervisors, and others who have information pertinent to the job. It is the most desirable method for job analysis purposes because it (a) involves firsthand observation by the analyst; (b) enables the analyst to evaluate the interview data and to sift essential from nonessential facts in terms of that observation; and (c) permits the worker to demonstrate various functions of the job rather than describing the job orally or in writing.

The analyst uses the observation-interview method in two ways; (a) he observes the worker on the job performing a complete work cycle before asking any questions. During the observation he takes notes of all the job activities, including those he does not fully understand. When he is satisfied that he has accumulated as much information as he can from observation, he talks with the worker or supervisor or both, to supplement his notes. (b) he observes and interviews simultaneously. As he watches, he talks with the worker about what is being done, and asks questions about

what he is observing, as well as conditions under which the job is being performed. Here, too, the analyst should take notes in order that he may record all the data pertinent to the job and its environment (p. 59).

This type of analysis is probably the most authoritative of all approaches in existence at the present time. The Center for Vocational and Technical Education advocates using a task analysis approach for acquiring and using occupational information effectively in revising and designing curricula. In Research and Development Series #91, the Center presented procedures and forms for constructing task inventories and analyzing occupational performances (Melching, 1973). The project staff, because of the kinds and quality of data collected, judged the task inventory approach to be more efficient and superior for collecting occupational performance data than conventional task and job analysis techniques. The following is an overview of the methods advocated:

A task inventory is a list of appropriate duty and task statements covering the tasks performed by workers in an occupational area. It may also contain identification and background information and may be used to collect occupational information from incumbent workers.

Several advantages have been claimed for the task inventory analysis technique. Some of them are:

1. The technique is economical. Data can be collected from hundreds of workers in an occupational field for less than it would cost to collect data from a few cases using professional job analysis.

2. The information collected is quantifiable. The number of people performing any given task can be counted and their characteristics described.

3. Since the data collected by task inventory techniques are quantifiable, they can be stored, manipulated, analyzed, and reported by computer.

4. The results of the task inventory can be validated and checked for stability using conventional statistical techniques.

5. The technique yields information that is accurate. Workers do not inflate their job descriptions in terms of the number or difficulty levels of tasks reported. There is a high probability that significant tasks missing from the inventory will be written in by workers who perform them (p. 3).

Overview of the Task Inventory Analysis Procedure. The task inventory analysis procedure uses conventional survey methods for constructing and validating occupational analyses. This procedure is comprised of several distinct steps, the exact number depending on who prepared them and the extent of detail he believes important...Developing and using a task inventory involves three main phases. These phases, along with some of the goals and activities of each, are:

1. Construction of Initial Inventory of Tasks. Here the goal is to generate a comprehensive inventory of duties and tasks for a given occupational area, using various standard sources of information. With the aid of experts, statements are refined and grouped and made ready for administration to job incumbents.

2. Acquisition of Information about Each Task. In this phase, the inventory of tasks is submitted in questionnaire form to a large group of job incumbents. After each incumbent provides certain background information about himself, he checks each task in the inventory that he actually performs. Following this, he indicates the relative amount of time he spends performing this task compared with other tasks that he does on his job.

On occasion, incumbents may be asked to provide other information about the tasks that they perform.

3. Analysis of Task Data. Once questionnaires are returned and checked for completeness, responses are tabulated and summary statistics derived. The results can then be used to guide the development or revision of training programs (p. 4).

The Oregon Board of Education utilized a form of task analysis to identify specific tasks and employer expectations which should be given emphasis in high school bookkeeping and/or accounting programs (Oregon Board of Education, 1973, p. 1). Lists of accounting tasks were compiled and matched against job descriptions of accounting positions listed in the Dictionary of Occupational Titles. From the clusters of tasks for each of the positions, instructional programs were developed to train students for these jobs.

Task analysis was utilized in the development of a course of study for secondary level bookkeeping and/or accounting courses. The procedure utilized was to identify terminal competencies or tasks required of bookkeeping and/or accounting workers, develop performance conditions and criteria, organize and implement instruction and then evaluate the results of the instruction (Brower, 1978, p. 8).

Summary

From the wide array of results in studies reported, it is evident that there is a great deal of divergent opinion concerning course objectives and skills needed to perform on the job in some phase of bookkeeping and/or accounting. Of particular concern is the conclusion in a number of studies (Ernst, Shook, Spanswick, Stelter, Buckley and West) that formal preparation in bookkeeping and/or accounting was helpful but not necessary for successful performance in business.

Another recurring conclusion (Stoner, Nicks, Young, Schench, Thorstad, Stelter, Amelio, Luxner, Buckley, Calvert, NOBELS and West) was that many of the best opportunities for high school graduates involving bookkeeping and/or accounting tasks were in jobs involving the clerical aspects of bookkeeping and/or accounting. Pure bookkeeping jobs were hard to secure coming directly from high school unless the graduate had work experience.

From the research cited, some form of task analysis appears to be the most authoritative approach to curriculum development. Since the bookkeeping and/or accounting function transcends many job classifications, a broad function task analysis was undertaken in this study.

CHAPTER III

METHODS AND PROCEDURES

The methods and procedures used in the collection of the data for this study are described in this chapter. Formulation of the survey instrument, identification of the respondents, collection of the data and the procedures used in the processing of the data will be discussed.

Formulation of the Survey Instrument

Type of instrument

The purpose of this study was to compare bookkeeping and/or accounting tasks being performed by entry-level workers with tasks being taught in Utah secondary schools. A questionnaire listing bookkeeping and/or accounting tasks was chosen as the best instrument to use in this study.

Erickson and Oliverio list the following criteria for the fact-finding and opinion-attitude survey instrument.

The fact-finding survey instrument requires that:

1. The information sought is objective.
2. The possible answers to the questions are generally already known to the investigator.

3. The primary purpose of the fact-finding instrument is to determine the prevailing situation.
4. The questions should ask for information in the manner in which it is generally maintained.
5. The need to state questions precisely is of primary importance.

The opinion-attitude survey instrument requires that:

1. The instrument must be developed on the assumption that the respondents have in some fashion developed an opinion or attitude toward the topic under study.
2. The items must be sensitively developed to elicit an accurate opinion or attitude of the respondent.
3. Respondents must have complete freedom to answer truthfully.
4. The items must be organized in a psychologically appealing order (Erickson and Oliverio, 1964, pp. 27-28).

These criteria were used in the construction of the questionnaire for this study.

A list of functions and tasks

A list of bookkeeping and/or accounting tasks was created from current bookkeeping and/or accounting textbooks being used in the high school curriculum and lists of tasks developed in current research efforts. A task was defined as a unit of worker activity that is intermediate in specificity between a function and a procedural work step or action (Melching and Borcher,

1973, p. 3). A preliminary listing of tasks was developed and revised.

A six member panel of experts was chosen to review the list of tasks for completeness. Three of the members were teachers of bookkeeping and/or accounting who were currently teaching in Utah secondary schools. The other three members were accountants currently practicing in Utah. This panel of experts was asked to check those tasks that they felt should be taught in high school bookkeeping and/or accounting classes and those tasks that would be performed by an entry-level bookkeeping and/or accounting employee.

Any task checked by any of the six members of the panel was included in the preparation of the final list of tasks. Panel members were also asked to add any tasks they felt were important but were not on the list. Those additional tasks were added to the final list. This list of tasks was used to create the questionnaire that was to be distributed to teachers and employees.

The design of the questionnaire

The questionnaire used in this study required three responses for each task listed. Frequency was defined as how often this task was performed on the job. Performance was defined as the manner in which the employee performed his job. Was it performed with limited supervision or was the employee supervising others in performing

the task. Importance was defined as how important the knowledge of the task was for an entry-level employee.

The same questionnaire was sent to teachers of bookkeeping and/or accounting and to entry-level bookkeeping and/or accounting workers in selected businesses. When the teachers responded to frequency and performance for each task, they were asked to do so using their best judgment as to entry-level employment opportunities. Entry-level bookkeeping and/or accounting workers were asked to respond to frequency and performance using facts relating to their position. When teachers and workers responded to importance they were basing the answers on opinion. Samples of the questionnaire are shown in Appendix A and B.

Pilot study

Before the final copy of the questionnaire was adopted, a pilot study was undertaken. Teachers and entry-level workers were asked to complete the questionnaire and asked to offer criticism and suggestions on the structure of the questionnaire. Their suggestions and criticisms were considered in the final design of the questionnaire.

Identifying the Respondents

Teachers of bookkeeping and/or accounting in Utah public secondary schools and entry-level bookkeeping

and/or accounting workers in Utah businesses were the individuals surveyed for this study.

Teachers

Reports generated by the Utah Vocational Information System were used in creating a list of all bookkeeping and/or accounting teachers in the public secondary schools of Utah. The State Specialist for Business and Office Occupations provided additional information to verify the accuracy of the list. A list of teacher's names was compiled representing approximately 87 public high schools in the State of Utah. Questionnaires were sent to every teacher on the list.

Entry-level employees

A stratified random sample was taken of Utah businesses. A sample of 24 businesses located in the Wasatch front area of the State of Utah (Utah, Salt Lake, Davis, Weber, and Tooele counties) was taken. The businesses were stratified by Standard Industrial Classification and size according to number of employees. The size categories based upon number of employees were: 1-19, 20-99 and over 100 employees. Size was considered an important factor in comparing teachers responses with employees responses. To insure broad coverage of all types of businesses, the generalized Standard Industrial Classifications were used: manufacturing; mining; contract

construction; transportation, communications and utilities; wholesale and retail trade; finance, insurance and real estate; service and miscellaneous; and government. This stratification was used to provide diversity in the types of businesses in the survey but was not used in statistical comparisons.

The sample was randomly selected by the Utah Department of Employment Security and included a business in each Standard Industrial Classification and each size grouping. Three businesses were actually selected in each category in case a business chose not to participate in the study or other complications arose.

Collection of Data

Teachers

Questionnaires and cover letters were mailed to the 100 teachers in early January. Each teacher was requested to complete the questionnaire if they were teaching bookkeeping and/or accounting classes in that school year. The teachers who were not teaching bookkeeping and/or accounting that year were requested to give the questionnaire to the teacher who was or, to return the questionnaire. Follow-up letters were mailed in February. Additional telephone contacts were made to determine reasons for questionnaires not being returned.

Of the 100 questionnaires mailed, 77 were returned. Of these 48 were usable, 7 were partially completed and 22 indicated they were not teaching bookkeeping and/or accounting. No responses were received from 23 teachers. Attempts to contact them by telephone were unsuccessful in receiving completed questionnaires from them. The most common comment was that they just did not have the time to complete the questionnaire.

Entry-level employees

Bookkeeping and/or accounting supervisors were contacted and interviewed in each of the businesses. Entry-level employees performing bookkeeping and/or accounting tasks were identified and questionnaires were distributed to them. An entry-level position was defined as a position that required less than a two-year post-secondary training program but did require some high school training to qualify as an applicant. The researcher was available for questions as the employees completed the questionnaire. In firms where more than one employee was performing entry-level bookkeeping and/or accounting functions, a summary questionnaire was created from data supplied by the separate questionnaires to show a profile of the business as a whole. All 24 businesses were contacted and usable questionnaires were secured from all businesses.

The Analysis of Data

Processing the data

The computer facilities at Utah State University, Weber State College and Utah Technical College at Provo were utilized in the analysis of the data.

The results of the questionnaires were punched on computer cards. Some of the programs to analyze the data were written for this study. The mean score and standard deviation of each question were obtained. Computer programs from the Statistical Package for the Social Sciences were used to treat the data (Nie, Hull, Jenkins, Steinbrenner and Bent, 1975). A two-way analysis of variance was used in analyzing the data.

An analysis of variance with total employees responses and teachers responses for frequency, performance and importance for each task was calculated. An analysis of variance with employees of small, medium and large businesses and teachers for frequency, performance and importance for each task was calculated. A factorial design was used in this study. Hughes and Grawoig describe the factorial design:

Factorial designs permit the analyst to evaluate the effect of two or more factors when they are used simultaneously and thereby obtain more complete information than could be obtained from a series of single-factor experiments. Not only does the design permit the analyst to investigate the effects of each factor, but

it also facilitates the study of effects attributable to various combinations of the factors (Hughes and Grawoig, 1971, p. 290).

When there is a significant result from the F test, there must be at least one case where the actual mean difference is greater than the calculated least significant difference.

When significance was found in either the main effects or the two-way interactions for any task, further analysis of variance tests were performed. One-way analysis of variance tests were performed on employee-teachers for frequency, employee-teachers for performance and employee-teachers for importance. Separate one-way analysis of variance tests were performed for small business employees-teachers for frequency, performance and importance; medium business employees-teachers for frequency, performance and importance; and large business employees-teachers for frequency, performance and importance.

Tasks were ranked by mean from high to low for all businesses and matched with means of teachers responses. Tasks were also ranked by mean from high to low for teachers and matched with means of all business responses. Tasks were ranked by mean from high to low for teachers and matched with means from employees of small, medium and large businesses.

Summary

Lists of bookkeeping and/or accounting tasks were developed as the basis for the design of a questionnaire requesting information from entry-level employees in selected businesses and bookkeeping and/or accounting teachers in Utah public secondary schools. Mailings and followup procedures yielded 48 usable questionnaires from teachers. A random sample of 24 Utah businesses stratified according to size and Standard Industrial Classification yielded 24 company profiles. The final statistical tests used for analyzing the findings were mean, standard deviation, one-way analysis of variance and two-way analysis of variance.

The findings of the study will be presented in Chapter IV. The summary of the findings, conclusions and recommendations will be presented in Chapter V.

CHAPTER IV

FINDINGS

Introduction

The data for this chapter were obtained from questionnaires sent to bookkeeping and/or accounting teachers in Utah public secondary schools and questionnaires given to entry-level bookkeeping and/or accounting workers in selected Utah businesses.

Of the 100 questionnaires mailed to teachers, 77 were returned. Of these, 48 were usable, 7 were partially completed and 22 respondents indicated they were not teaching bookkeeping and/or accounting.

A stratified random sample was taken of Utah businesses located in the Wasatch front area. A sample of 24 businesses stratified by Standard Industrial Classification and size according to number of employees was taken from the records of the Utah Department of Employment Security. Size categories were utilized in the statistical treatment but Standard Industrial Classification was not. This stratification was utilized to provide diversity in the types of businesses in the survey. Entry-level bookkeeping and/or accounting workers in these businesses were asked

to complete questionnaires and from these questionnaires a profile of the business as a whole was secured. Profiles on all 24 businesses were secured and utilized in the statistical treatment.

The purpose of the questionnaire was to gather data for comparing facts and opinions from teachers and entry-level employees. The questionnaire contained 132 book-keeping and/or accounting tasks which the teachers and entry-level workers were to rate according to frequency, performance and importance.

For the purpose of reporting the findings, this chapter will be divided into two sections: the analysis of variance and descriptive question analysis.

Analysis of Variance

For each task listed on the questionnaire the following null hypotheses were tested:

1. There will be no significant difference between opinions of teachers and entry-level employees on each individual task when considering frequency, performance and importance.
2. There will be no significant difference between opinions of teachers and entry-level employees on each individual task when considering frequency, performance and importance by size of business.

Hypothesis 1: There will be no significant difference between the opinions of teachers and entry-level employees when considering frequency, performance and importance.

A two-way analysis of variance was performed on each task listed. A list of tasks where the researcher failed to reject the null hypothesis at the .05 level of confidence is shown in Table 1. There was no significant difference between the opinions of teachers and entry-level employees when considering frequency, performance and importance on these tasks. Teachers and entry-level employees did not disagree on tasks involved with payroll activities, data processing activities and tasks involved with initiation and preparation of data for further processing. The tasks listed in Table 1 show no significance at the .05 level in both main effects and 2-way interactions.

A sample of the results of the analysis of variance tests performed for each of the tasks reported in Tables 1 and 2 is shown below for Item 1:

<u>Source of Variation</u>	<u>Degrees of Freedom</u>	<u>Mean Squares</u>	<u>F Ratio</u>
Main Effects:	3	15.424	10.305*
Business-Teachers	1	42.188	28.187*
Frequency, Performance			
Importance	2	2.042	1.364
2-Way interactions			
BT - FPI	2	2.687	1.796
Explained	5	10.329	6.901
Residual	210	1.497	
Total	215	1.702	

In all cases in Tables 1 and 2, there were 24 businesses and 48 teachers responses for frequency, performance and importance. The asterisk indicates that the F-Ratio was significant at the .05 level.

Table 1. Two-way analysis of variance on the opinions of teachers and entry-level employees on frequency, performance and importance--tasks with no significance at the .05 level.

Task Number	Task Description	BT ¹	FPI ²	Interactions
		F Ratio	F Ratio	F Ratio
15	Payroll ledgers maintained	1.133	2.713	0.685
19	Initiate or prepare journal entries in original set of books	2.371	1.723	0.250
20	Initiate or prepare data for electronic equipment	0.987	1.093	1.104
26	Initiate or prepare data for correcting	3.555	0.602	0.183
72	Handle time cards	0.644	0.989	0.374
73	Figure payroll	0.675	1.562	0.189
84	Payroll taxes -- Federal withholding	3.141	2.573	0.683
85	Payroll taxes -- State withholding	2.871	2.842	0.630
124	Operate check protector	1.003	1.236	0.342
126	Prepare input for automated processing	3.205	0.959	0.725
127	Utilize printed output	1.129	0.646	0.660

¹Business and Teachers

²Frequency, Performance and Importance

A list of tasks where the null hypothesis was rejected at the .05 level of confidence for the main effects and/or 2-way interactions is shown in Table 2. There was a significant difference between the opinions of teachers and entry-level employees when considering frequency, performance and importance on these tasks. For each of the tasks in Table 2 that show significance for teachers and employees and/or for frequency, performance and importance, further analysis of variance tests were completed to determine which factors were responsible for the significance. Separate tests were performed for frequency (Table 3), performance (Table 4) and importance (Table 5).

Table 2. Two-way analysis of variance on the opinions of teachers and entry-level employees on frequency, performance and importance--significance at .05 level indicated by *

Task Number	Task Description	BT ¹ F Ratio	FPI ² F Ratio	Interactions F Ratio
<u>Journals Maintained</u>				
1	General	28.187*	1.364	1.796
2	Cash receipts	12.875*	3.176*	0.761
3	Cash payments	33.686*	1.625*	1.540
4	Check register	25.671*	1.625	0.973
5	Combined cash	95.660*	2.442	1.176
6	Sales	29.285*	3.113*	1.093
7	Sales returns and allowances	27.106*	0.899	1.296
8	Purchases	86.651*	2.134	1.637
9	Purchase returns and allowances	66.993*	0.960	1.695
10	Voucher register	63.104*	1.661	0.040*
11	Petty cash register	143.140*	2.216	1.568
<u>Ledgers Maintained</u>				
12	General	41.844*	0.860	1.099
13	Accounts receivable	24.072*	1.380	0.815
14	Notes receivable	27.993*	0.141	0.031
16	Accounts or vouchers payable	21.884*	1.025	1.548
17	Plant (fixed assets)	11.283*	2.057	0.026
18	Materials and stores ledgers	37.701*	0.239	0.548

Table 2 continued.

Task Number	Task Description	BT F Ratio	FPI F Ratio	Interactions F Ratio
<u>Initiate or Prepare</u>				
21	Adjusting entries	3.963*	2.095	0.187
22	Closing entries	30.506*	3.386*	0.010
23	Entries to adjust inventory ledger cards	47.826*	2.985	0.946
24	Entries for purchase of materials	19.998*	0.940	0.053
25	Entries for issuance of materials	70.537*	0.662	2.094
27	Expense accounts	57.095*	0.153	0.969
28	Bank deposits	0.437	5.679*	0.776
29	Withholding tax calculations	0.120	3.102*	0.004
30	Entries for depreciation	28.010*	4.743*	0.072
31	Entries for bad debts	28.098*	2.722	0.059
<u>Record (post)</u>				
32	Entries in ledgers from journals	110.446*	0.752	0.208
33	Adjusting entries	24.641*	2.844	0.683
34	Closing entries	36.985*	4.385*	0.390
35	Purchase of materials	92.133*	0.552	0.471
36	Issuance of materials	109.652*	0.850	1.275
37	Opening a set of books	32.420*	11.548*	1.426
38	Data in ledgers from special journal	98.399*	0.629	0.054

Table 2 continued

Task Number	Task Description	BT F Ratio	FPI F Ratio	Interactions F Ratio
<u>Maintain, Analyze or Do</u>				
39	Payroll tax records	0.695	5.606*	0.013
40	Sales tax records	41.009*	3.165*	0.199
41	Perpetual inventories	97.300*	0.219	2.486
42	Add (foot) and balance ledger accounts	48.119*	1.543	0.393
43	Add (foot), balance and total columns in special journals	44.313*	2.392	0.646
44	Rule and balance accounts	46.204*	2.573	0.110
45	Verify balances of control account with subsidiary ledger	42.636*	2.975	0.227
46	Discount notes	57.760*	0.435	0.286
47	Work with promissory notes	36.031*	0.510	0.326
48	Checking account	41.805*	2.111	0.384
49	Petty cash records	67.329*	1.319	0.836
<u>Working Papers Used</u>				
50	Trial balance	97.514*	5.589*	0.865
51	Post-closing trial balance	112.605*	8.709*	0.583
52	Worksheet	59.387*	6.729*	0.501
<u>Prepare Computations For</u>				
53	Straight-line depreciation	27.559*	6.825*	0.146
54	Units of production depreciation	39.384*	6.490*	0.178

Table 2 continued

Task Number	Task Description	BT	FPI	Interactions
		F Ratio	F Ratio	F Ratio
55	Sum-of-the-years-digits depreciation	26.548*	7.925*	0.084
56	Declining balance depreciation	20.830*	5.623*	0.077
57	Depletion	41.575*	3.515*	0.139
58	Uncollectable accounts	12.029*	1.131	0.207
59	Inventory amount on hand	88.992*	3.423*	0.284
60	Inventory physical count	70.081*	7.664*	0.611
61	Perpetual inventory	95.101*	0.887	0.335
62	FIFO inventory	34.843*	2.398	0.328
63	LIFO inventory	42.244*	2.326	0.488
64	Weighted average inventory	29.228*	2.253	0.330
65	Specific inventory	26.622*	1.900	0.292
66	Interest receivable	35.510*	1.298	0.263
67	Interest payable	47.186*	1.852	0.041
68	Markup	100.023*	0.584	0.905
69	Markdown	116.041*	0.907	0.941
70	Trade discounts	66.154*	0.841	0.911
71	Cash discount	62.454*	0.535	0.777
74	Overtime	9.337*	1.575	0.124
75	Shift premiums	20.488*	1.557	0.382
76	Vacation and holiday pay	5.223*	1.976	0.083
77	Bonuses	14.797*	2.982	0.073
78	Pension and annuity payments	14.912*	1.111	0.059
79	Group life insurance premiums	5.647*	1.391	0.068
80	Medical and hospitalization plan premiums	5.006*	1.090	0.053

Table 2 continued

Task Number	Task Description	BT F Ratio	FPI F Ratio	Interactions F Ratio
Payroll Taxes:				
81	FICA	1.506	3.342*	1.099
82	State unemployment	0.636	5.098*	1.323
83	Federal unemployment	1.593	6.165*	1.388
86	Workmen's compensation	1.875	6.102*	1.489
Statements:				
87	Balance sheet	76.997*	9.100*	0.264
88	Income statement	58.612*	9.404*	0.106
89	Capital statement	85.085*	8.379*	0.163
90	Retained earnings statement	70.813*	6.308*	0.085
91	Statement of changes in financial position	43.087*	6.259*	0.037
92	Cash flow statement	29.759*	2.988	0.083
Tax Reports:				
93	Employee withholding	10.643*	9.519*	0.120
94	FICA	11.064*	10.479*	0.150
95	Federal unemployment compensation	13.500*	12.192*	0.211
96	State unemployment compensation	12.101*	11.199*	0.167
97	State sales and use tax	15.809*	11.867*	0.407
98	Schedule of accounts receivable	17.353*	3.729*	0.621
99	Schedule of accounts payable	24.678*	3.148*	0.600
<u>Financial Statement Analysis</u>				
Ratios and Percentages:				
100	Current ratio	14.231*	0.751	0.003
101	Acid test ratio	24.603*	1.590	0.073

Table 2 continued

Task Number	Task Description	BT F Ratio	FPI F Ratio	Interactions F Ratio
102	Percentage of increase or decrease	9.719*	0.612	0.002
103	Trend percentages	18.489*	0.893	0.146
104	Common size statements	16,932*	0.725	0.069
105	Turnover of accounts receivable	37.264*	0.274	0.129
106	Days sales uncollected	32.006*	0.032	0.206
107	Turnover of merchandise inventory	29.319*	0.619	0.102
108	Capital contributions of owners and creditors	29.860*	1.313	0.194
109	Pledged plant assets to long-term liabilities	31.162*	1.353	0.240
110	Times fixed interest charges were earned	34.282*	1.521	0.353
111	Rate of return on total assets employed	29.787*	1.865	0.331
112	Rate of return on common stockholder's equity	29.661*	1.288	0.195
113	Earnings per share of common stock	26,192*	0.951	0.039
114	Price earnings ratio	23.864*	0.611	0.011
	Comparative Analysis:			
115	Balance Sheet	17.461*	3.883*	0.079
116	Income statement	17.461*	3.883*	0.079
117	Analysis of accounts receivable	27.336*	4.202*	0.065
118	Dividends per share	41.660*	3.663*	0.425
	<u>Operate</u>			
119	Ten-key adding machine	2.596	8.434*	1.316
120	Calculator	0.183	10.258*	0.604
121	Dictating equipment	21.321*	0.294	1.607
122	Telephone equipment	16.720*	5.828*	0.319
123	Cash register	91.272*	2.146	1.955
125	Bookkeeping machine	104.632*	1.092	2.833

Table 2 continued

Task Number	Task Description	BT F Ratio	FPI F Ratio	Interactions F Ratio
<u>Perform Data Processing Activities</u>				
128	Operate computer	12.970*	0.615	0.596
129	Write programs	9.855*	0.450	0.123
130	Initiate and prepare flowcharts	16.416*	1.031	0.018
131	Use pegboard system	49.583*	0.707	0.223
132	Operate a terminal to a computer system	4.397*	0.624	0.672

¹Business and Teachers

²Frequency, Performance and Importance

Teachers-employees and frequency

The results of one-way analysis of variance tests for teachers-employees and frequency for each task are shown in Table 3. With the exception of one task, operating the telephone, teachers rated the tasks higher than entry-level employees. In the categories of journals maintained; ledgers maintained; initiate and prepare; record(post); maintain, analyze or do; working papers used; depreciation; inventory; business mathematics calculations; payroll; statements; financial statement analysis, operate equipment and perform data processing activities, there was a significant difference between the opinions of teachers and entry-level employees when considering frequency.

A sample of the results of the one-way analysis of variance tests performed for each of the tasks reported on in Tables 3, 4 and 5 is shown below for Item 1 for frequency:

<u>Source of Variation</u>	<u>Degrees of Freedom</u>	<u>Mean Squares</u>	<u>F Ratio</u>
Between Groups	1	27.5625	17.236 *
Within Groups	70	1.5991	
Total	71		

In all cases in Tables 3, 4 and 5 there were 24 businesses and 48 teachers responses. The asterisk indicates that the F-ratio was significant at the .05 level.

Table 3. One-way analysis of variance on opinions of teachers and entry-level employees on frequency--significance at .05 level indicated by *

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
<u>Journals Maintained</u>						
1	General	27.5625	1.5991	17.236*	2.5417	3.8542
2	Cash receipts	12.2500	2.1107	5.804*	3.4167	4.2917
3	Cash payments	36.0000	1.9125	18.824*	2.7917	4.2917
4	Check register	22.5625	2.4134	9.349*	2.6250	3.8125
5	Combined cash	73.6736	1.8664	39.474*	1.9167	4.0625
6	Sales	30.2500	1.8946	15.966*	2.7083	4.0833
7	Sales returns and allowances	31.1736	1.9158	16.272*	1.8750	3.2708
8	Purchases	65.3403	1.5807	41.337*	1.9167	3.9375
9	Purchase returns and allowances	56.2500	1.6089	34.961*	1.3750	3.2500
10	Voucher register	57.5069	1.8259	31.495*	1.5833	3.4792
11	Petty cash register	87.1111	1.4690	59.298*	1.4167	3.7500
<u>Ledgers Maintained</u>						
12	General	30.2500	1.2250	24.694*	2.5833	3.9583
13	Accounts receivable	11.6736	1.3045	8.949*	3.4167	4.2708
14	Notes receivable	16.0000	1.5429	10.370*	2.0000	3.0000
16	Accounts or vouchers payable	25.8403	1.5164	17.041*	2.6667	3.9375
17	Plant (fixed assets)	5.8403	1.0182	5.735*	1.7083	2.3125
18	Materials and stores ledgers	28.4444	1.5357	18.522*	1.5833	2.9167
<u>Initiate and prepare</u>						
21	Adjusting entries	1.0000	1.5786	0.633	2.2500	2.5000
22	Closing entries	17.3611	0.9702	17.894*	1.5000	2.5417

Table 3 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
23	Entries to adjust inventory ledger cards	20.2500	0.5893	34.364*	1.1667	2.2917
24	Entries for purchase of materials	14.0625	2.0277	6.935*	2.3750	3.3130
25	Entries for issuance of materials	62.6736	1.6182	38.732*	1.2083	3.1875
27	Expense accounts	44.4444	1.4268	31.150*	1.7917	3.4583
28	Bank deposits	0.5625	1.1473	0.490	4.1667	4.3542
29	Withholding tax calculations	0.1111	1.3744	0.081	3.0417	3.1250
30	Entries for depreciation	10.0178	0.6042	16,598*	1.3750	2.1667
31	Entries for bad debts	12.2500	0.7679	15.953*	1.4167	2.2917
<u>Record (post)</u>						
32	Entries in ledgers from journals	53.7778	1.2571	42.778*	2.3333	4.1667
33	Adjusting entries	5.0625	0.9777	5.178*	2.0417	2.6042
34	Closing entries	10.5625	1.0205	10.350*	1.7917	2.6042
35	Purchase of materials	52.5625	1.3920	37.761*	1.6250	3.4375
36	Issuance of materials	73.6736	1.3949	52.815*	1.1667	3.3125
37	Opening a set of books	5.4444	0.7792	6.988*	1.1250	1.7083
38	Data in ledgers from special journal	47.8403	1.3348	35.840*	1.5417	3.2708
<u>Maintain, Analyze or Do</u>						
39	Payroll tax records	0.2500	1.3210	0.221	3.0000	3.1250
40	Sales tax records	14.6944	1.3851	10.609*	2.0417	3.0000

Table 3 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
41	Perpetual inventories	68.0625	1.3348	50.990*	1.2083	3.2708
42	Add (foot) and balance ledger accounts	19.5069	1.5545	12.549*	2.1667	3.2708
43	Add (foot), balance and total columns in special journals	14.0625	1.1991	11.727*	2.2083	3.1458
44	Rule and balance accounts	21.0069	1.1854	17.721*	1.7500	2.8958
45	Verify balances of control account with subsidiary ledger	15.3403	0.9330	16.441*	2.1667	3.1458
46	Discount notes	35.0059	1.1378	30.767*	1.0833	2.5625
47	Work with promissory notes	22.5625	1.0134	22.264*	1.2917	2.4792
48	Checking account	27.5625	1.6348	16.860*	3.1250	4.4375
49	Petty cash records	47.8403	1.7324	27.614*	2.4583	4.1875
<u>Working Papers Used</u>						
50	Trial balance	32.1111	0.7976	40.259*	1.5833	3.0000
51	Post-closing trial balance	35.0069	0.5521	63.409*	1.3333	2.8125
52	Worksheet	21.7778	0.8571	25.407*	1.6667	2.8333
<u>Prepare Computations for</u>						
53	Straight line depreciation	8.5069	0.6872	12.379*	1.3750	2.1042
54	Units of production depreciation	10.0278	0.4804	20.876*	1.0417	1.8333
55	Sum-of-the-years digits depreciation	8.0278	0.4536	17.699*	1.0833	1.7917

Table 3 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
56	Declining balance depreciation	5.8403	0.5920	9.866*	1.2917	1.8958
57	Depletion	10.0278	0.4232	23.694*	1.0417	1.8333
58	Uncollectible accounts	9.5069	1.1848	8.024*	1.7083	2.4792
59	Inventory amount on hand	25.0000	0.8411	29.724*	1.2917	2.5417
60	Inventory physical count	17.3611	0.5946	29.196*	1.2917	2.3333
61	Perpetual inventory	39.0625	1.0705	36.489*	1.1250	2.6875
62	FIFO inventory	10.0278	0.5012	20.008*	1.0833	1.8750
63	LIFO inventory	11.1111	0.3810	29.167*	1.0000	1.8333
64	Weighted average inventory	8.5069	0.4449	19.119*	1.0833	1.8125
65	Specific inventory	8.5069	0.4449	19.119*	1.0833	1.8125
66	Interest receivable	16.0000	0.7696	20.789*	1.4583	2.4583
67	Interest payable	19.5069	0.7973	24.466*	1.4167	2.5208
68	Markup	58.7778	1.3310	44.162*	1.2500	3.1667
69	Markdown	61.3611	1.2940	47.418*	1.1667	3.1250
70	Trade discounts	51.3611	1.9327	26.574*	1.6250	3.4167
71	Cash discount	49.0000	1.8929	25.887*	1.7500	3.5000
74	Overtime	5.8403	1.4259	4.096*	2.9167	3.5208
75	Shift premium	18.7778	1.6333	11.497*	2.1667	3.2500
76	Vacation and holiday pay	3.0625	1.6402	1.867	2.5833	3.0208
77	Bonuses	10.5625	1.4420	7.325*	2.0417	2.8542
78	Pension and annuity payments	10.5625	1.5348	6.882*	1.9583	2.7708
79	Group life insurance premiums	4.3403	1.4610	2.971	2.2917	2.8125
80	Medical and hospitalization plan premiums	1.7778	1.5601	1.140	2.5417	2.8750
81	FICA	2.0069	1.1902	1.686	2.9167	3.2708

Table 3 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
	Payroll taxes:					
82	State unemployment	2.7778	1.2262	2.265	2.5833	3.0000
83	Federal unemployment	4.6944	1.2851	3.653	2.4583	3.0000
86	Workmen's compensation	6.2500	1.2661	4.937*	2.2083	2.8333
	Statements:					
87	Balance sheet	25.8403	0.6372	40.553*	1.3750	2.6458
88	Income statement	22.5625	0.6134	36.783*	1.4583	2.6458
89	Capital statement	26.6944	0.5232	51.020*	1.2917	2.5833
90	Retained earnings statement	25.8403	0.4563	56.636*	1.2083	2.4792
91	Statement of changes in financial position	16.6736	0.5521	30.201*	1.1667	2.1875
92	Cash flow statement	13.4444	0.7268	18.499*	1.2917	2.2083
	Tax reports:					
93	Employee withholding	5.4444	0.6143	8.863*	1.8333	2.4167
94	FICA	5.0625	0.5545	9.130*	1.8333	2.3958
95	Federal unemployment compen- sation	4.3403	0.5140	8.444*	1.7500	2.2708
96	State unemployment compen- sation	4.3403	0.5140	8.444*	1.7500	2.2708
97	State sales and use tax	4.3403	0.5140	7.599*	1.7500	2.2708
98	Schedule of accounts receivable	4.0000	0.9643	4.148*	2.4167	2.9167
99	Schedule of accounts payable	5.4444	0.9286	5.863*	2.3333	2.9167
	<u>Financial Statement Analysis</u>					
100	Current ratio	4.0000	0.5125	7.805*	1.1250	1.6250

Table 3 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
101	Acid test ratio	4.3403	0.3426	12.670*	1.0000	1.5208
102	Percentage of increase or decrease	3.3611	0.6917	4.859*	1.2500	1.7083
103	Trend percentages	3.3611	0.4613	7.286*	1.1250	1.5833
104	Common size statements	3.3611	0.4250	7.908*	1.0833	1.5417
105	Turnover of accounts receivable	12.2500	0.6946	17.635*	1.0417	1.9167
106	Days sales uncollected	14.6944	1.2423	11.829*	1.0417	2.0000
107	Turnover of merchandise inventory	6.6736	0.5521	12.088*	1.1667	1.8125
108	Capital contributions of owners and creditors	7.5625	0.4634	16.320*	1.0417	1.7292
109	Pledged plant assets to long-term liabilities	4.3403	0.2854	15.207*	1.0000	1.5208
110	Times fixed interest charges were earned	4.6944	0.2845	16.499*	1.0000	1.5417
111	Rate of return on total assets employed	3.6736	0.2568	14.303*	1.0000	1.4792
112	Rate of return on common stockholders equity	4.3403	0.2967	14.627*	1.0417	1.5625
113	Earnings per share of common stock	5.4444	0.3786	14.382*	1.0833	1.6667
114	Price earnings ratio	5.0625	0.3259	15.534*	1.0833	1.6458
	Comparative Analysis					
115	Balance sheet	6.6736	0.8664	7.703*	1.4167	2.0625
116	Income statement	6.6736	0.8664	7.703*	1.4167	2.0625

Table 3 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
117	Analysis of accounts receivable	10.0278	0.7756	12.929*	1.3750	2.1667
118	Dividends per share	7.5625	0.4902	15.428*	1.0833	1.7708
<u>Operate</u>						
119	Ten-key adding machine	4.3403	0.8015	5.415*	4.3750	4.8958
120	Calculator	0.3403	0.6948	0.490	4.6667	4.8125
121	Dictating equipment	33.0625	2.4634	13.422*	1.9583	3.3958
122	Telephone equipment	3.6736	1.4330	2.564	4.8333	4.3542
123	Cash register	95.0625	2.2973	41.380*	1.8333	4.2708
125	Bookkeeping machine	91.8403	1.8116	50.695*	1.3333	3.7292
<u>Perform Data Processing Activities</u>						
128	Operate computer	12.2500	1.9893	6.158*	1.3333	2.2083
129	Write programs	3.6736	1.3063	2.812	1.2917	1.7708
130	Initiate and prepare flowcharts	5.4444	0.7792	6.988*	1.1250	1.7083
131	Use pegboard system	29.3403	1.9902	14.743*	1.1667	2.5208
132	Operate a terminal to a computer	8.5069	2.3539	3.614	1.7083	2.4375

Teachers-employees and performance

The results of one-way analysis of variance tests for teachers-employees and performance for each task are shown in Table 4. Of 132 tasks listed, teachers rated 122 tasks higher than entry-level employees. In the categories of record(post); maintain, analyze or do; working papers; depreciation; inventories; business mathematics calculations; statements; financial statement analysis and operate equipment, there was a significant difference between the opinions of teachers and entry-level employees when considering performance. Teachers and employees did not disagree significantly on most payroll activities and data processing activities.

Table 4. One-way analysis of variance on opinions of teachers and entry-level employees on performance--significance at .05 level indicated by *

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
<u>Journals Maintained</u>						
1	General	4.0000	1.4500	2.759	2.7500	3.2500
2	Cash receipts	2.0069	1.6539	1.213	3.2083	3.5625
3	Cash payments	7.5625	1.6277	4.646*	2.7917	3.4792
4	Check register	6.2500	1.7679	3.535	2.5833	3.2083
5	Combined cash	38.0278	1.3756	27.645*	1.8750	3.4167
6	Sales	9.5069	1.5545	6.116*	2.5833	3.3542
7	Sales returns and allowances	10.0278	1.6274	6.162*	2.0000	2.7917
8	Purchases	25.8403	1.3896	18.596*	2.0417	3.3125
9	Purchase returns and allowances	24.1736	1.4348	16.848*	1.5417	2.7708
10	Voucher register	32.1111	1.1696	27.454*	1.5417	2.9583
11	Petty cash register	55.0069	1.0872	50.595*	1.3750	3.2292
<u>Ledgers Maintained</u>						
12	General	9.5069	1.4973	6.349*	2.8333	3.6042
13	Accounts receivable	4.3403	1.4188	3.059	3.3333	3.8542
14	Notes receivable	12.8403	1.6229	7.912*	2.1250	3.0208
16	Accounts or vouchers payable	4.3403	1.6521	2.627	2.9167	3.4375
17	Plant (fixed assets)	5.8403	1.5991	3.652	2.0417	2.6458
18	Materials and stores ledgers	15.3403	1.4086	10.890*	1.8750	2.8542
<u>Initiate and prepare</u>						
21	Adjusting entries	4.6944	1.9798	2.371	2.3333	2.8750

Table 4 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
22	Closing entries	16.6736	1.9586	8.513*	1.8750	2.8958
23	Entries to adjust inventory ledger cards	25.8403	1.2967	19.927*	1.2917	2.5625
24	Entries for purchase of materials	10.0278	1.8179	5.516*	2.1667	2.9583
25	Entries for issuance of materials	31.1736	1.5021	20.754*	1.4167	2.8125
27	Expense accounts	23.3611	1.4845	15.736*	2.0000	3.2083
28	Bank deposits	0.4444	1.3030	0.341	3.7917	3.6250
29	Withholding tax calculations	0.0625	1.6402	0.038	3.2500	3.3125
30	Entries for depreciation	14.0625	1.6205	8.678*	1.6250	2.5625
31	Entries for bad debts	12.8403	1.5086	8.511*	1.6250	2.5208
<u>Record (post)</u>						
32	Entries in ledgers from journals	42.2500	1.2536	33.704*	2.2500	3.8750
33	Adjusting entries	13.4444	1.6143	8.328*	2.1667	3.0833
34	Closing entries	19.5069	1.6354	11.928*	2.0000	3.1042
35	Purchase of materials	33.0625	1.3277	24.902*	1.7083	3.1458
36	Issuance of materials	43.3403	1.3521	32.054*	1.4167	3.0625
37	Opening a set of books	21.7778	1.8786	11.593*	1.4167	2.5833
38	Data in ledgers from special journal	42.2500	1.4179	29.798*	1.6667	3.2917
<u>Maintain, Analyze or Do</u>						
39	Payroll tax records	0.1736	1.1777	0.149	3.2917	3.3958
40	Sales tax records	21.7778	1.4173	15.366*	2.2083	3.3750

Table 4 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
41	Perpetual inventories	42.2500	1.2518	33.752*	1.3750	3.0000
42	Add (foot) and balance ledger accounts	21.0069	1.6759	12.535*	2.3333	3.4792
43	Add (foot), balance and total columns in special journals	16.6736	1.6521	10.092*	2.4167	3.4375
44	Rule and balance accounts	29.3403	1.7902	16.390*	1.9167	3.2708
45	Verify balances of control account with subsidiary ledger	18.0625	1.6205	11.146*	2.3750	3.4375
46	Discount notes	25.8403	1.6086	16.064*	1.3750	2.6458
47	Work with promissory notes	16.0000	1.4554	10.994*	1.5417	2.5417
48	Checking account	14.0625	1.4205	9.899*	2.9583	3.8958
49	Petty cash records	21.7778	1.5238	14.292*	2.5000	3.6667
<u>Working Papers Used</u>						
50	Trial balance	35.0069	1.7253	20.290*	1.9583	3.4375
51	Post-closing trial balance	40.1111	1.6744	23.955*	1.7917	3.3750
52	Worksheet	21.7778	1.8077	12.047*	2.1250	3.2917
<u>Prepare Computations for</u>						
53	Straight line depreciation	12.2500	1.5518	7.894*	1.7083	2.5833
54	Units of production depreciation	16.0000	1.2286	13.023*	1.3333	2.3333
55	Sum-of-the-years digits depreciation	11.6736	1.3854	8.426*	1.5000	2.3542

Table 4 continued.

Task Number	Task Description	Mean Squares			Means	
		Between	Within	F Ratio	Employees	Teachers
56	Declining balance depreciation	8.5069	1.4116	6.026*	1.6667	2.3958
57	Depletion	14.0625	1.0259	13.708*	1.2500	2.1875
58	Uncollectible accounts	4.3403	1.6682	2.602	2.0417	2.5625
59	Inventory amount on hand	37.0069	1.1182	33.096*	1.2917	2.8125
60	Inventory physical count	33.0625	1.2063	27.409*	1.4583	2.8958
61	Perpetual inventory	33.0625	0.8634	38.294*	1.1250	2.5625
62	FIFO inventory	14.6944	0.9226	15.927*	1.1667	2.1250
63	LIFO inventory	16.0000	0.8214	19.478*	1.0833	2.0833
64	Weighted average inventory	12.2500	0.9607	12.751*	1.1667	2.0417
65	Specific inventory	10.5625	0.8902	11.866*	1.1667	1.9792
66	Interest receivable	10.0278	1.5089	6.646*	1.7917	2.5833
67	Interest payable	16.6736	1.3664	12.203*	1.6667	2.6875
68	Markup	35.0069	1.0801	32.412*	1.3750	2.8542
69	Markdown	43.3403	0.8848	48.982*	1.2083	2.8542
70	Trade discounts	23.3611	1.4631	15.967*	1.7500	2.9583
71	Cash discount	22.5625	1.5759	14.317*	1.9167	3.1042
74	Overtime	2.7778	1.5381	1.806	3.0000	3.4167
75	Shift premium	12.8403	1.8021	7.125*	2.1667	3.0625
76	Vacation and holiday pay	1.7778	1.7143	1.037	2.8333	3.1667
77	Bonuses	7.5625	1.7420	4.341*	2.2917	2.9792
78	Pension and annuity payments	7.1111	1.6976	4.189*	2.0833	2.7500
79	Group life insurance premiums	3.0625	1.6348	1.873	2.4583	2.8958
80	Medical and hospitalization plan premiums	2.7778	1.5976	1.739	2.5833	3.0000
81	FICA	0.3403	1.4705	0.231	3.2917	3.1458

Table 4 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
	Payroll taxes:					
82	State unemployment	1.0000	1.5268	0.655	3.2917	3.0417
83	Federal unemployment	0.4444	1.5982	0.278	3.2083	3.0417
86	Workmen's compensation	0.3403	1.6896	0.201	2.9583	2.8125
	Statements:					
87	Balance sheet	36.0000	1.6571	21.724*	1.6667	3.1667
88	Income statement	25.8403	1.7229	14.998*	1.8750	3.1458
89	Capital statement	36.0000	1.2857	28.000*	1.5000	3.0000
90	Retained earnings statement	27.5625	1.3134	20.986*	1.3750	2.6875
91	Statement of changes in financial position	18.7778	1.4833	12.659*	1.4167	2.5000
92	Cash flow statement	12.8403	1.5354	8.363*	1.5000	2.3958
	Tax reports:					
93	Employee withholding	3.3611	1.8756	1.792	2.6250	3.0833
94	FICA	3.3611	1.8185	1.848	2.6250	3.0833
95	Federal unemployment compen- sation	5.0625	1.7545	2.885	2.5000	3.0625
96	State unemployment compen- sation	4.3403	1.8140	2.393	2.5000	3.0208
97	State sales and use tax	5.8403	1.7539	3.330	2.4583	3.0625
98	Schedule of accounts receivable	6.2500	1.4518	4.305*	2.7083	3.3333
99	Schedule of accounts payable	11.1111	1.3810	8.046*	2.5000	3.3333
	<u>Financial Statement Analysis</u>					
100	Current ratio	3.6736	1.1348	3.237	1.2917	1.7708

Table 4 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
101	Acid test ratio	6.2500	0.9089	6.876*	1.1250	1.7500
102	Percentage of increase or decrease	3.3611	1.3298	2.528	1.4167	1.8750
103	Trend percentages	6.2500	1.0179	6.140*	1.1667	1.7917
104	Common size statements	3.6736	1.0039	3.659	1.2083	1.6875
105	Turnover of accounts receivable	12.2500	1.0375	11.807*	1.1250	2.0000
106	Days sales uncollected	9.5069	0.9872	9.630*	1.1250	1.8958
107	Turnover of merchandise inventory	10.0278	0.9756	10.279*	1.1250	1.9167
108	Capital contributions of owners and creditors	11.6736	1.0801	10.808*	1.1250	1.9792
109	Pledged plant assets to long-term liabilities	8.0278	0.7994	10.042*	1.0417	1.7500
110	Times fixed interest charges were earned	9.5069	0.8324	11.421*	1.0417	1.8125
111	Rate of return on total assets employed	7.5625	0.8062	9.380*	1.0417	1.7292
112	Rate of return on common stockholders equity	6.6736	0.8729	7.645*	1.1250	1.7708
113	Earnings per share of common stock	6.2500	0.9232	6.770*	1.2083	1.8333
114	Price earnings ratio	5.4444	0.9125	5.967*	1.2083	1.7917
	Comparative Analysis:					
115	Balance Sheet	9.5069	1.7592	5.404*	1.6667	2.4375
116	Income statement	9.5069	1.7592	5.404*	1.6667	2.4375

Table 4 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
117	Analysis of accounts receivable	12.2500	1.4536	8.428*	1.5833	2.4583
118	Dividends per share	14.6944	1.0042	14.633*	1.1250	2.0833
<u>Operate</u>						
119	Ten-key adding machine	0.1111	0.9458	0.117	4.0417	4.1250
120	Calculator	0.4445	0.8839	0.503	4.2083	4.0417
121	Dictating equipment	14.0625	1.8777	7.489*	2.1250	3.0625
122	Telephone equipment	9.5069	1.1545	8.235*	4.4167	3.6458
123	Cash register	47.8403	1.6164	29.597*	1.8333	3.5625
125	Bookkeeping machine	46.6944	1.2845	36.352*	1.5000	3.2083
<u>Perform Data Processing Activities</u>						
128	Operate computer	2.7778	1.1786	2.357	1.4167	1.8333
129	Write programs	2.5069	1.1039	2.271	1.2917	1.6875
130	Initiate and prepare flowcharts	4.3403	0.8711	4.982*	1.2500	1.7708
131	Use pegboard system	20.2500	1.2232	16.555*	1.1250	2.2500
132	Operate a terminal to a computer	0.8403	1.5563	0.540	1.7917	2.0208

Teachers-employees and Importance

The results of one-way analysis of variance tests for teachers-employees and importance for each task are shown in Table 5. Of 132 tasks listed, teachers rated 128 tasks higher than entry-level employees. In the categories of journals maintained; ledgers maintained; record(post); maintain, analyze or do; working papers; depreciation; inventories; business mathematics calculations; statements; tax reports; financial statement analysis and perform data processing activities, there was a significant difference between the opinions of teachers and entry-level employees when considering importance. Teachers and employees did not disagree when considering most payroll tasks and tasks involving operation of equipment.

Table 5. One-way analysis of variance on opinions of teachers and entry-level employees on importance--significance at .05 level indicated by *

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
<u>Journals Maintained</u>						
1	General	16.0000	1.4411	11.103*	2.6250	3.6250
2	Cash receipts	11.1111	1.5220	7.300*	3.1250	3.9583
3	Cash payments	19.5069	1.6062	12.144*	2.7917	3.8958
4	Check register	25.0000	1.6643	15.021*	2.4167	3.6667
5	Combined cash	40.1111	1.4048	28.554*	2.1667	3.7500
6	Sales	11.1111	1.4000	7.937*	2.8333	3.6667
7	Sales returns and allowances	8.5069	1.4783	5.755*	2.2500	2.9792
8	Purchases	37.0069	1.3062	28.331*	2.2083	3.7292
9	Purchase returns and allowances	21.7778	1.3125	16.593*	1.7917	2.9583
10	Voucher register	10.5625	1.3187	8.009*	2.0833	2.8958
11	Petty cash register	43.3403	1.2473	34.747*	1.8333	3.4792
<u>Ledgers Maintained</u>						
12	General	18.7778	1.2649	14.845*	2.8750	3.9583
13	Accounts receivable	16.6736	1.0920	15.269*	3.2083	4.2292
14	Notes receivable	15.3403	1.5586	9.842*	2.1250	3.1042
16	Accounts or vouchers payable	8.5069	1.4777	5.757*	3.0417	3.7708
17	Plant (fixed assets)	4.3403	1.6229	2.674	2.1250	2.6458
18	Materials and stores ledgers	13.4444	1.4810	9.078*	2.0000	2.9167
<u>Initiate and prepare</u>						
21	Adjusting entries	2.2500	1.9375	1.161	2.6250	3.0000

Table 5 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
22	Closing entries	15.3403	1.9235	7.975*	2.0833	3.0625
23	Entries to adjust inventory ledger cards	9.5069	1.4687	6.473*	1.8333	2.6042
24	Entries for purchase of materials	13.4444	1.7554	7.659*	2.2917	3.2083
25	Entries for issuance of materials	19.5069	1.4307	13.635*	1.8333	2.9375
27	Expense accounts	19.5069	1.5259	12.784*	2.1667	3.2708
28	Bank deposits	1.3611	1.226	1.212	3.8333	4.1250
29	Withholding tax calculations	0.0278	1.6726	0.017	3.5833	3.6250
30	Entries for depreciation	11.1111	1.5262	7.280*	1.9167	2.7500
31	Entries for bad debts	9.5069	1.4021	6.781*	1.9167	2.6875
<u>Record (post)</u>						
32	Entries in ledgers from journals	41.1736	1.2021	34.252*	2.3333	3.9375
33	Adjusting entries	16.6736	1.4664	11.371*	2.1667	3.1875
34	Closing entries	21.0069	1.4015	14.989*	2.1250	3.2708
35	Purchase of materials	37.0069	1.2330	30.013*	1.8333	3.3542
36	Issuance of materials	37.0069	1.3711	26.990*	1.7500	3.2708
37	Opening a set of books	25.0000	1.7839	14.014*	1.6250	2.8750
38	Data in ledgers from special journal	41.1736	1.2449	33.073*	1.8333	3.4375
<u>Maintain, Analyze or Do</u>						
39	Payroll tax records	0.4444	1.2976	0.343	3.5833	3.7500
40	Sales tax records	23.3611	1.5327	15.241*	2.3750	3.5833

Table 5 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
41	Perpetual inventories	21.7778	1.2881	16.907*	1.7500	2.9167
42	Add (foot) and balance ledger accounts	34.0278	1.3423	25.351*	2.2917	3.7500
43	Add (foot), balance and total columns in special journals	30.2500	1.1607	26.062*	2.3333	3.7083
44	Rule and balance accounts	24.1736	1.8402	13.137*	2.1667	3.3958
45	Verify balances of control account with subsidiary ledger	25.0000	1.5125	16.529*	2.4583	3.7083
46	Discount notes	21.7778	1.5030	14.490*	1.4583	2.6250
47	Work with promissory notes	11.6736	1.6396	7.120*	1.7083	2.5625
48	Checking account	21.7778	1.4125	15.418*	3.0417	4.2083
49	Petty cash records	36.0000	1.3357	26.952*	2.4167	3.9167
<u>Working Papers Used</u>						
50	Trial balance	57.5069	1.2443	46.215*	1.8750	3.7708
51	Post-closing trial balance	56.2500	1.2375	45.455*	1.7917	3.6667
52	Worksheet	37.0069	1.3372	27.675*	2.1250	3.6458
<u>Prepare Computations for</u>						
53	Straight line depreciation	14.0625	1.5116	9.303*	1.9167	2.8542
54	Units of production depreciation	12.8403	1.2253	10.479*	1.5417	2.4375
55	Sum-of-the-years digits depreciation	9.0000	1.3839	6.503*	1.7083	2.4583

Table 5 continued.

Task Number	Task Description	Mean Squares			Means	
		Between	Within	F Ratio	Employees	Teachers
56	Declining balance depreciation	8.5069	1.2640	6.730*	1.7500	2.4792
57	Depletion	10.0278	0.9964	10.064*	1.4167	2.2083
58	Uncollectible accounts	4.6944	1.6179	2.902	2.1667	2.7083
59	Inventory amount on hand	32.1111	1.1935	26.906*	1.6250	3.0417
60	Inventory physical count	23.3611	1.3036	17.921*	1.8333	3.0417
61	Perpetual inventory	25.8403	1.1348	22.770*	1.4583	2.7292
62	FIFO inventory	7.5625	1.3045	5.797*	1.5000	2.1875
63	LIFO inventory	7.5625	1.2045	6.279*	1.4167	2.1042
64	Weighted average inventory	5.8403	1.2640	4.621*	1.5000	2.1042
65	Specific inventory	5.0625	1.3259	3.818	1.5000	2.0625
66	Interest receivable	18.0625	1.3920	12.976*	1.7083	2.7708
67	Interest payable	20.2500	1.3679	14.804*	1.7500	2.8750
68	Markup	33.0625	1.3259	24.936*	1.5833	3.0208
69	Markdown	33.0625	1.3259	24.936*	1.5833	3.0208
70	Trade discounts	31.1736	1.2777	24.399*	1.7083	3.1042
71	Cash discount	33.0625	1.4348	23.043*	1.7917	3.2292
74	Overtime	5.8403	1.5610	3.741	3.2083	3.8125
75	Shift premium	7.1111	2.0315	3.500	2.7083	3.3750
76	Vacation and holiday pay	4.3403	1.7562	2.471	2.9583	3.4792
77	Bonuses	6.6736	1.7949	3.718	2.6667	3.3125
78	Pension and annuity payments	7.5625	1.8045	4.191*	2.3333	3.0208
79	Group life insurance premiums	2.0669	1.7854	1.124	2.7500	3.1042
80	Medical and hospitalization plan premiums	3.6736	1.6711	2.198	2.7500	3.2292
81	FICA	2.7778	1.4905	1.864	3.3333	3.7500

Table 5 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
	<u>Payroll taxes:</u>					
82	State unemployment	1.0000	1.6143	0.619	3.3333	3.5833
83	Federal unemployment	1.3611	1.5798	0.862	3.3333	3.6250
86	Workmen's compensation	1.1736	1.8449	0.636	3.1667	3.4375
	<u>Statements:</u>					
87	Balance sheet	38.0278	1.5702	24.218*	2.0000	3.5417
88	Income statement	30.2500	1.6750	18.060*	2.1667	3.5417
89	Capital statement	33.0625	1.5545	21.269*	1.9167	3.3542
90	Retained earnings statement	21.7778	1.4077	15.470*	1.8750	3.0417
91	Statement of changes in financial position	15.3403	1.4949	10.261*	1.8333	2.8125
92	Cash flow statement	9.5069	1.3259	7.170*	1.8333	2.6042
	<u>Tax Reports:</u>					
93	Employee withholding	7.1111	1.8976	3.747	2.5833	3.2500
94	FICA	7.5625	1.8473	4.094*	2.5833	3.2708
95	Federal unemployment compen- sation	9.5069	1.8062	5.263*	2.4583	3.2292
96	State unemployment compen- sation	8.5069	1.8182	4.679*	2.4583	3.1875
97	State sales and use tax	12.2500	1.7232	7.109*	2.3750	3.2500
98	Schedule of accounts receivable	14.0625	1.5062	9.336*	2.6250	3.5625
99	Schedule of accounts payable	16.6736	1.5426	10.809*	2.5000	3.5208
	<u>Financial Statement Analysis</u>					
100	Current ratio	4.0000	0.8125	4.923*	1.2917	1.7917

Table 5 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
101	Acid test ratio	5.8403	0.7402	7.890*	1.1667	1.7708
102	Percentage of increase or decrease	3.0625	0.9973	3.071	1.4167	1.8542
103	Trend percentages	4.6944	0.8060	5.825*	1.2500	1.7917
104	Common size statements	5.0625	0.6973	7.260*	1.1667	1.7292
105	Turnover of accounts receivable	8.5069	0.9068	9.381*	1.2500	1.9792
106	Days sales uncollected	9.0000	0.8429	10.678*	1.1667	1.9167
107	Turnover of merchandise inventory	8.0278	0.9851	8.149*	1.2917	2.0000
108	Capital contributions of owners and creditors	7.1111	1.0696	6.648*	1.2917	1.9583
109	Pledged plant assets to long-term liabilities	6.2500	0.6804	9.186*	1.1250	1.7500
110	Times fixed interest charges were earned	6.6736	0.6729	9.917*	1.1250	1.7708
111	Rate of return on total assets employed	6.6736	0.7015	9.514*	1.1250	1.7708
112	Rate of return on common stockholders equity	7.5625	0.6848	11.043*	1.1250	1.8125
113	Earnings per share of common stock	7.1111	0.8458	8.407*	1.2083	1.8750
114	Price earnings ratio	4.6944	0.6708	6.998*	1.2083	1.7500
	Comparative Analysis:					
115	Balance Sheet	10.5625	1.9277	5.479*	1.8750	2.6875
116	Income statement	10.5625	1.9277	5.479*	1.8750	2.6875

Table 5 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
117	Analysis of accounts receivable	14.0625	1.7402	8.081*	1.8333	2.7708
118	Dividends per share	14.0625	1.0687	13.158*	1.3333	2.2708
<u>Operate</u>						
119	Ten-key adding machine	0.0278	0.8232	0.034	4.2917	4.3333
120	Calculator	0.3403	0.8473	0.402	4.4167	4.2708
121	Dictating equipment	4.3403	1.9521	2.223	2.4167	2.9375
122	Telephone equipment	8.5069	1.1610	7.327*	4.5417	3.8125
123	Cash register	37.0069	1.7568	21.064*	2.2500	3.7708
125	Bookkeeping machine	30.2500	1.4946	20.239*	1.7917	3.1667
<u>Perform Data Processing Activities</u>						
128	Operate computer	5.4444	1.1690	4.657*	1.4167	2.0000
129	Write programs	5.4444	1.0429	5.221*	1.3333	1.9167
130	Initiate and prepare flowcharts	4.6944	0.9899	4.742*	1.3750	1.9167
131	Use pegboard system	19.5069	0.9301	20.974*	1.1250	2.2292
132	Operate a terminal to a computer	1.1736	1.5878	0.739	1.9167	2.1875

Hypothesis 2: There will be no significant differences between the opinions of teachers and entry-level employees on each individual task when considering frequency, performance and importance by size of business.

A two-way analysis of variance was performed on each task listed. A list of tasks where the researcher failed to reject the null hypothesis at the .05 level of confidence is shown in Table 6. There was no significant difference between the opinions of teachers and entry-level employees when considering frequency, performance and importance by size of business on these tasks.

Teachers and employees failed to disagree on tasks involved with initiating and preparing entries in an original set of books, initiating or preparing data for correcting, three payroll activities and operating a check protector. The tasks listed in Table 6 showed no significance at the .05 level in both main effects and 2-way interactions.

A sample of the results of the analysis of variance tests performed for each of the tasks reported in Tables 6 and 7 is shown below for Item 1:

<u>Source of Variation</u>	<u>Degrees of Freedom</u>	<u>Mean Squares</u>	<u>F Ratio</u>
Main effects	5	14.210	10.119 *
Sizes	3	22.322	15.895 *
Frequency, performance and importance (FPI)	2	2.042	1.454
2-way interactions			
Sizes -- FPI	6	1.405	1.001

<u>Source of Variation</u>	<u>Degrees of Freedom</u>	<u>Mean Squares</u>	<u>F Ratio</u>
Explained	11	7.225	5.145 *
Residual	204	1.404	
Total	215	1.702	

The variable "sizes" includes a category for teachers; small, medium and large businesses. In all cases in Tables 6 and 7, there were 8 small, 8 medium and 8 large businesses and 48 teachers responses for frequency, performance and importance. The asterisk indicates that the F-ratio was significant at the .05 level.

Table 6. Two-way analysis of variance on the opinions of teachers and entry-level employees in three sizes of businesses on frequency, performance and importance--tasks with no significance at the .05 level.

Task Number	Task Description	BT ¹ F Ratio	FPI ² F Ratio	Interactions F Ratio
19	Initiate or prepare journal entries in original set of books	1.800	1.708	0.260
26	Initiate or prepare data for correcting	2.353	0.598	0.249
72	Handle time cards	1.847	0.991	0.353
79	Figure group life insurance premiums	1.847	1.353	0.055
80	Figure medical and hospitalization plans	1.777	1.062	0.034
124	Operate check protector	2.047	1.232	0.129

¹Business and Teachers

²Frequency, Performance and Importance

A list of tasks where the null hypothesis was rejected at the .05 level of confidence for the main effects and/or 2-way interactions is shown in Table 7. There was significant difference between the opinions of teachers and entry-level employees when considering frequency, performance and importance by size of business. For each of the tasks in Table 7 that show significance for teachers and employees and/or frequency, performance and importance by size of business, further analysis of variance tests were completed to determine which factors were responsible for the significance.

Separate tests were performed for small businesses and frequency (Table 8), medium businesses and frequency (Table 9) and large businesses and frequency (Table 10). Separate tests were performed on small business and performance (Table 11), medium businesses and performance (Table 12), and large businesses and performance (Table 13). Separate tests were performed on small businesses and importance (Table 14), medium business and importance (Table 15), and large businesses and importance (Table 16).

Table 7. Two-way analysis of variance on the opinions of teachers and entry-level employees in three sizes of businesses on frequency, performance and importance--significance at the .05 level indicated by *

Task Number	Task Description	BT ¹ F Ratio	FPI ² F Ratio	Interactions F Ratio
<u>Journals Maintained</u>				
1	General	15.895*	1.454	1.001
2	Cash receipts	4.231*	3.097*	0.355
3	Cash payments	12.396*	3.064*	0.720
4	Check register	13.308*	1.683	0.365
5	Combined cash	37.406*	2.531	0.505
6	Sales	10.127*	3.063*	0.527
7	Sales returns and allowances	9.590*	0.890	0.773
8	Purchases	29.116*	2.113	0.952
9	Purchase returns and allowances	23.594*	0.957	0.808
10	Voucher register	22.577*	1.658	1.222
11	Petty cash register	51.245*	2.247	0.586
<u>Ledgers Maintained</u>				
12	General	19.964*	0.911	0.871
13	Accounts receivable	23.685*	1.630	0.575
14	Notes receivable	9.109*	0.137	0.105
15	Payroll	2.816*	2.745	0.429
16	Accounts or vouchers payable	8.656*	1.025	0.830
17	Plant (fixed assets)	8.913*	2.158	0.236
18	Materials and stores ledgers	14.818*	0.240	0.240

Table 7 continued.

Task Number	Task Description	BT F Ratio	FPI F Ratio	Interactions F Ratio
<u>Initiate or Prepare</u>				
20	Data for electronic equipment	4.009*	1.125	0.573
21	Adjusting entries	2.734*	2.082	0.177
22	Closing entries	10.244*	3.319*	0.177
23	Entries to adjust inventory ledger cards	16.103*	2.940	0.588
24	Entries for purchase of materials	7.245*	0.926	0.154
25	Entries for issuance of materials	25.665*	0.665	0.798
27	Expense accounts	24.250*	0.160	0.578
28	Bank deposits	4.502*	5.875*	0.300
29	Withholding tax calculations	1.439	3.091*	0.170
30	Entries for depreciation	10.519*	4.712*	0.175
31	Entries for bad debts	10.311*	2.707	0.320
<u>Record (post)</u>				
32	Entries in ledgers from journals	37.289*	0.746	0.410
33	Adjusting entries	8.027*	2.772	0.332
34	Closing entries	17.315*	4.549*	0.185
35	Purchase of materials	30.366*	0.545	0.682
36	Issuance of materials	37.434*	0.844	0.589
37	Opening a set of books	11.466*	11.432*	0.737
38	Data in ledgers from special journal	32.314*	0.619	0.424

Table 7 continued.

Task Number	Task Description	BT F Ratio	FPI F Ratio	Interactions F Ratio
<u>Maintain, Analyze or Do</u>				
39	Payroll tax records	1.354	5.565*	0.188
40	Sales tax records	14.919*	3.157*	0.334
41	Perpetual inventories	34.495*	0.219	0.913
42	Add (foot) and balance ledger accounts	18.975*	1.571	0.455
43	Add (foot), balance and total columns in special journals	16.593*	2.396	0.379
44	Rule and balance accounts	16.971*	2.563	0.094
45	Verify balances of control account with subsidiary ledger	15.919*	2.992	0.457
46	Discount notes	19.657*	0.428	0.158
47	Work with promissory notes	12.023*	0.499	0.172
48	Checking account	13.815*	2.073	0.437
49	Petty cash records	23.325*	1.306	0.393
<u>Working Papers Used</u>				
50	Trial balance	32.440*	5.517*	0.652
51	Post-closing trial balance	38.738*	8.674*	0.381
52	Worksheet	25.062*	6.988*	0.267
<u>Prepare Computations For</u>				
53	Straight line depreciation	9.185*	6.679*	0.200
54	Units of production depreciation	13.294*	6.374*	0.235

Table 7 continued.

Task Number	Task Description	BT	FPI	Interactions
		F Ratio	F Ratio	F Ratio
55	Sum-of-the-years-digits depreciation	10.328*	7.942*	0.374
56	Declining balance depreciation	7.384*	5.527*	0.146
57	Depletion	13.899*	3.438*	0.106
58	Uncollectable accounts	4.385*	1.111	0.229
59	Inventory amount on hand	30.900*	3.401*	0.155
60	Physical count	23.123*	7.514*	0.406
61	Perpetual	30.940*	0.864	0.170
62	FIFO inventory	11.546*	2.340	0.166
63	LIFO inventory	13.746*	2.265	0.226
64	Weighted average inventory	9.724*	2.199	0.168
65	Specific inventory	8.773*	1.852	0.156
66	Interest receivable	12.591*	1.288	0.410
67	Interest payable	15.731*	1.810	0.136
68	Markup	33.592*	0.575	0.392
69	Markdown	38.318*	0.888	0.315
70	Trade discounts	22.136*	0.828	0.542
71	Cash discount	21.557*	0.530	0.396
73	Figures payroll	4.792*	1.621	0.118
74	Overtime	6.335*	1.603	0.080
75	Shift premiums	7.790*	1.550	0.473
76	Vacation and holiday pay	4.187*	1.999	0.226
77	Bonuses	4.930*	2.911	0.138
78	Pension and annuity payments	6.746*	1.109	0.069

Table 7 continued.

Task Number	Task Description	BT F Ratio	FPI F Ratio	Interactions F Ratio
	Payroll taxes:			
81	FICA	4.340*	3.452*	0.613
82	State unemployment	3.267*	5.212*	0.006
83	Federal unemployment	2.890*	6.259*	0.002
84	Federal withholding	3.429*	2.603	0.453
85	State withholding	3.346*	2.875	0.436
86	Workmen's compensation	1.559	6.067*	0.827
	Statements:			
87	Balance sheet	25.429*	8.908*	0.199
88	Income statement	21.333*	9.426*	0.244
89	Capital statement	30.396*	8.488*	0.678
90	Retained earnings statement	25.548*	6.358*	0.434
91	Statement of changes in financial position	14.958*	6.180*	0.183
92	Cash flow statement	10.341*	2.943	0.210
	Tax reports:			
93	Employee withholding	4.570*	9.421*	0.149
94	FICA	4.755*	10.378*	0.164
95	Federal unemployment compensation	7.407*	12.391*	0.224
96	State unemployment compensation	6.879*	11.372*	0.206
97	State sales and use tax	5.511*	11.624*	0.240
98	Schedule of accounts receivable	6.613*	3.681*	0.309
99	Schedule of accounts payable	9.038*	3.119*	0.441
	<u>Financial Statement Analysis</u>			
	Ratios and Percentages:			
100	Current ratio	5.353*	0.740	0.146
101	Acid test ratio	8.468*	1.559	0.140

Table 7 continued.

Task Number	Task Description	BT F Ratio	FPI F Ratio	Interactions F Ratio
102	Percentage of increase or decrease	3.758*	0.601	0.064
103	Trend percentages	6.549*	0.875	0.077
104	Common size statements	6.774*	0.719	0.133
105	Turnover of accounts receivable	12.995*	0.270	0.146
106	Days sales uncollected	10.814*	0.031	0.102
107	Turnover of merchandise inventory	9.892*	0.605	0.093
108	Capital contributions of owners and creditors	10.067*	1.285	0.167
109	Pledged plant assets to long-term liabilities	10.225*	1.318	0.116
110	Times fixed interest charges earned	11.236*	1.481	0.152
111	Rate of return on total assets employed	9.779*	1.817	0.146
112	Rate of return on common stockholders equity	10.141*	1.262	0.122
113	Earnings per share of common stock	9.008*	0.931	0.070
114	Price earnings ratio	8.314*	0.599	0.068
	Comparative analysis:			
115	Balance sheet	5.712*	3.783*	0.103
116	Income statement	5.712*	3.783*	0.103
117	Analysis of accounts receivable	9.571*	4.126*	0.069
118	Dividends per share	14.117*	3.587*	0.149
	<u>Operate</u>			
119	Ten-key adding machine	1.970	8.399*	0.738
120	Calculator	4.506*	10.672*	0.400
121	Dictating equipment	17.028*	0.324	0.642
122	Telephone equipment	7.205*	5.811*	0.180
123	Cash register	31.203*	2.132	0.944
125	Bookkeeping machine	36.411*	1.089	1.005

Table 7 continued.

Task Number	Task Description	BT F Ratio	FPI F Ratio	Interactions F Ratio
<u>Perform Data Processing Activities</u>				
126	Prepare input for automated processing	6.279*	1.005	0.360
127	Utilize printed output	4.685*	0.669	0.292
128	Operate computer	4.370*	0.599	0.228
129	Write programs	3.604*	0.441	0.131
130	Initiate and prepare flowcharts	6.025*	1.013	0.053
131	Use pegboard system	16.665*	0.693	0.109
132	Operate a terminal to a computer system	2.820*	0.621	0.356

¹Business and Teachers

²Frequency, Performance and Importance

Teachers-employees and frequency by small business

The results of one-way analysis of variance tests for teachers-employees and frequency by small business for each task are shown in Table 8. Of the 132 tasks listed, teachers rated 127 tasks higher than entry-level employees. In the categories of journals maintained; ledgers maintained; initiate and prepare; maintain, analyze or do; working papers; depreciation; inventories; business mathematics calculations; statements; financial statement analysis and operate equipment, there was a significant difference between the opinions of teachers and entry-level employees when considering frequency by small business on most tasks. Teachers did not disagree on the categories of record(post), payroll and perform data processing activities.

A sample of the results of the one-way analysis of variance tests performed for each of the tasks reported on in Tables 8, 9, 10, 11, 12, 13, 14, 15 and 16 is shown below for Item 1 for teachers-employees and frequency by small business:

<u>Source of Variation</u>	<u>Degrees of Freedom</u>	<u>Mean Squares</u>	<u>F Ratio</u>
Between groups	1	3.6458	2.859
Within groups	54	1.2751	
Total			

In all cases in Tables 8, 9, 10, 11, 12, 13, 14, 15 and 16 there were 8 businesses and 48 teachers responses. The asterisk indicates that the F-ratio was significant at the .05 level.

Table 8. One-way analysis of variance on opinions of teachers and entry-level employees of small businesses on frequency--significance at .05 level indicated by *

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
<u>Journals Maintained</u>						
1	General	3.6458	1.2751	2.859	3.1250	3.8542
2	Cash receipts	7.4405	1.6188	4.596*	3.2500	4.2917
3	Cash payments	16.2976	1.4707	11.082*	2.7500	4.2917
4	Check register	7.7411	2.1262	3.641	2.7500	3.8125
5	Combined cash	40.7411	1.7164	23.736*	1.6250	4.0625
6	Sales	12.1905	1.5031	8.110*	2.7500	4.0833
7	Sales returns and allowances	11.0744	1.9904	5.564*	2.0000	3.2708
8	Purchases	29.1696	1.4016	20.811*	1.8750	3.9375
9	Purchase returns and allowances	34.7143	1.6111	21.547*	1.0000	3.2500
10	Voucher register	26.8601	1.8144	14.804*	1.5000	3.4792
11	Petty cash register	51.8571	1.3148	39.441*	1.0000	3.7500
<u>Ledgers Maintained</u>						
12	General	4.7619	0.8665	5.495*	3.1250	3.9583
13	Accounts receivable	0.0030	0.6478	0.005	4.2500	4.2708
14	Notes receivable	6.8571	1.5926	4.306*	2.0000	3.0000
15	Payroll	0.0476	1.1420	0.042	3.5000	3.4167
16	Accounts or vouchers payable	7.7411	1.2164	6.364*	2.8750	3.9375
17	Plant (fixed assets)	0.2411	1.0220	0.236	2.1250	2.3125
18	Materials and stores ledgers	7.4405	1.7137	4.342*	1.8750	2.9167

Table 8 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
<u>Initiate and prepare</u>						
20	Data for electronic equipment	21.0000	2.4282	8.648*	1.3750	3.1250
21	Adjusting entries	3.8571	1.0278	3.753	1.7500	2.5000
22	Closing entries	9.3333	0.8850	10.546*	1.3750	2.5417
23	Entries to adjust inventory ledger cards	7.4405	0.6929	10.738*	1.2500	2.2917
24	Entries for purchase of materials	7.7411	1.7373	4.456*	2.2500	3.3125
25	Entries for issuance of materials	32.8125	1.8762	17.489*	1.0000	3.1875
27	Expense accounts	23.0476	1.2554	18.359*	1.6250	3.4583
28	Bank deposits	0.5030	0.7566	0.665	4.6250	4.3542
29	Withholding tax calculation	0.1071	1.1250	0.095	3.2500	3.1250
30	Entries for depreciation	3.0476	0.6420	4.747*	1.5000	2.1667
31	Entries for bad debts	4.2976	0.6651	6.461*	1.5000	2.2917
<u>Record (post)</u>						
32	Entries in ledgers from journals	32.1905	0.7901	40.741*	2.0000	4.1667
33	Adjusting entries	2.5030	0.6941	3.606	2.0000	2.6042
34	Closing entries	0.3601	0.8769	0.411	2.3750	2.6042
35	Purchase of materials	25.7411	1.2558	20.498*	1.5000	2.4375
36	Issuance of materials	32.8125	1.7257	19.014*	1.1250	3.3125
37	Opening a set of books	1.4405	0.9892	1.456	1.2500	1.7083
38	Data in ledgers from special journal	18.5744	1.3584	13.674*	1.6250	3.2708

Table 8 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
<u>Maintain, Analyze or Do</u>						
39	Payroll tax records	0.0000	0.7431	0.000	3.1250	3.1250
40	Sales tax records	12.9643	1.0347	12.529*	1.6250	3.0000
41	Perpetual inventories	35.3601	1.5089	23.435*	1.0000	3.2708
42	Add (foot) and balance ledger accounts					
		2.8601	1.3214	2.165	2.6250	3.2708
43	Add (foot), balance and total columns in special journal	1.8601	0.8862	2.099	2.6250	3.1458
44	Rule and balance accounts	18.5744	0.9255	20.069*	1.2500	2.8958
45	Verify balances of control accounts with subsidiary ledger					
		9.0030	0.5181	17.376*	2.0000	3.1458
46	Discount notes	16.7411	1.4039	11.924*	1.0000	2.5625
47	Work with promissory notes	10.3601	1.1755	8.813*	1.2500	2.4792
48	Checking account	19.5268	1.2095	16.145*	2.7500	4.4375
49	Petty cash records	36.6696	1.2998	28.212*	1.8750	4.1875
<u>Working Papers Used</u>						
50	Trial balance	15.4286	0.6296	24.504*	1.5000	3.0000
51	Post-closing trial balance	11.8125	0.5799	20.371*	1.5000	2.8125
52	Worksheet	2.3333	0.8549	2.729	2.2500	2.8333

Table 8 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
<u>Prepare Computations for</u>						
53	Straight line depreciation	3.6458	0.7473	4.879*	1.3750	2.1042
54	Units of production depreciation	4.7619	0.6049	7.872*	1.0000	1.8333
55	Sum-of-the-years digits depreciation	3.0476	0.5702	5.345*	1.1250	1.7917
56	Declining balance depreciation	1.8601	0.6732	2.763	1.3750	1.8958
57	Depletion	4.7619	0.5309	8.970*	1.0000	1.8333
58	Uncollectible accounts	8.3601	0.8862	9.434*	1.3750	2.4792
59	Inventory amount on hand	16.2976	0.8873	18.367*	1.0000	2.5417
60	Inventory physical count	10.0119	0.6211	16.119*	1.1250	2.3333
61	Perpetual inventory	19.5268	1.3021	14.997*	1.0000	2.6875
62	FIFO inventory	5.2500	0.5787	9.072*	1.0000	1.8750
63	LIFO inventory	4.7619	0.4938	9.643*	1.0000	1.8333
64	Weighted average inventory	4.5268	0.5058	8.950*	1.0000	1.8125
65	Specific inventory	4.5268	0.5428	8.339*	1.0000	1.8125
66	Interest receivable	8.0476	0.7739	10.399*	1.3750	2.4583
67	Interest payable	9.0030	0.8492	10.602*	1.3750	2.5208
68	Markup	22.0119	1.6397	13.425*	1.3750	3.1667
69	Markdown	21.0000	1.6505	12.724*	1.3750	3.1250
70	Trade discounts	22.0119	1.9915	11.053*	1.6250	3.4167
71	Cash discount	15.4286	1.9259	8.011*	2.0000	3.5000
73	Figures payroll	0.1905	0.8110	0.235	3.6250	3.5483
74	Overtime	5.5030	1.0714	5.136*	2.6250	3.5208
75	Shift premiums	18.1071	1.1273	16.062*	1.6250	3.2500

Table 8 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
76	Vacation and holiday pay	2.8601	1.3144	1.415	2.5000	3.0208
77	Bonuses	5.0030	1.1848	4.223*	2.0000	2.7321
78	Pension and annuity payments	0.5030	1.4533	0.346	2.5000	2.7708
	Payroll taxes:					
81	FICA	0.1458	1.0066	0.145	3.1250	3.2708
82	State unemployment	0.9643	1.1458	0.842	2.6250	3.0000
83	Federal unemployment	0.9643	1.1458	0.842	2.6250	3.0000
84	Federal withholding	0.1458	1.0436	0.140	3.1250	3.2708
85	State withholding	0.0744	1.0621	0.070	3.1250	3.2292
86	Workmen's compensation	3.4405	1.1767	2.924	2.1250	2.8333
	Statements:					
87	Balance sheet	11.0744	0.6825	16.227*	1.3750	2.6458
88	Income statement	7.1458	0.6454	11.071*	1.6250	2.6458
89	Capital statement	8.0476	0.5864	13.723*	1.5000	2.5833
90	Retained earnings statement	8.3601	0.5158	16.207*	1.3750	2.4792
91	Statement of changes in financial position	6.0268	0.6447	9.349*	1.2500	2.1875
92	Cash flow statement	6.2976	0.7299	8.628*	1.2500	2.2083
	Tax reports:					
93	Employee withholding	1.1905	0.5494	2.167	2.0000	2.4167
94	FICA	1.0744	0.4718	2.277	2.0000	2.3958
95	Federal unemployment compen- sation	0.5030	0.4718	1.066	2.0000	2.2708
96	State unemployment compen- sation	0.5030	0.4718	1.066	2.0000	2.2708
97	State sales and use tax	2.8601	0.5436	5.261*	1.6250	2.2708

Table 8 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
98	Schedule of accounts receivable	0.5833	0.6952	0.839	2.6250	2.9167
99	Schedule of accounts payable	1.1905	0.6235	1.909	2.5000	2.9167
<u>Financial Statement Analysis</u>						
Ratios and percentages:						
100	Current ratio	2.6786	0.5787	4.629*	1.0000	1.6250
101	Acid test ratio	1.8601	0.4441	4.189*	1.0000	1.5208
102	Percentage of increase or decrease	2.3333	0.7554	3.089	1.1250	1.7083
103	Trend percentages	1.4405	0.5285	2.725	1.1250	1.5833
104	Common size statements	2.0119	0.4799	4.192*	1.0000	1.5417
105	Turnover of accounts receivable	5.7619	0.8827	6.527*	1.0000	1.9167
106	Days sales uncollected	6.8571	1.5926	4.306*	1.0000	2.0000
107	Turnover of merchandise inventory	4.5268	0.5799	7.807*	1.0000	1.8125
108	Capital contributions of owners and creditors	2.5030	0.5992	4.178*	1.1250	1.7292
109	Pledged plant assets to long-term liabilities	1.8601	0.3700	5.028*	1.0000	1.5208
110	Times fixed interest charges were earned	2.0119	0.3688	5.455*	1.0000	1.5417
111	Rate of return on total assets employed	1.5744	0.3329	4.729*	1.0000	1.4792
112	Rate of return on common stockholders equity	2.1696	0.3669	5.913*	1.0000	1.5625

Table 8 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
113	Earnings per share of common stock	2.0119	0.4730	4.254*	1.1250	1.6667
114	Price earnings ratio	1.8601	0.4047	4.596*	1.1250	1.6458
	Comparative analysis:					
115	Balance sheet	4.5268	0.8947	5.060*	1.2500	2.0625
116	Income statement	4.5268	0.8947	5.060*	1.2500	2.0625
117	Analysis of accounts receivable	4.2976	0.8619	4.986*	1.3750	2.1667
118	Dividends per share	4.0744	0.5644	7.219*	1.0000	1.7708
	<u>Operate</u>					
119	Ten-key adding machine	5.5030	0.6015	9.149*	4.0000	4.8958
120	Calculator	0.6696	0.6169	1.086	4.5000	4.8125
121	Dictating equipment	15.8601	2.3029	6.887*	1.8750	3.3958
122	Telephone equipment	2.8601	1.5737	1.817	5.0000	4.3542
123	Cash register	35.3601	2.2496	15.718*	2.0000	4.2708
125	Bookkeeping machine	34.0744	2.0644	16.505*	1.5000	3.7292
	<u>Perform Data Processing Activities</u>					
126	Prepare input for automated processing	9.6696	2.6609	3.634	1.8750	3.0625
127	Utilize printed output	8.6786	2.6829	3.235	1.8750	3.0000
128	Operate computer	4.7619	2.2924	2.077	1.3750	2.2083

Table 8 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
129	Write programs	1.0744	1.4140	0.760	1.3750	1.7708
130	Initiate and prepare flowcharts	3.4405	0.9614	3.579	1.0000	6.7083
131	Use pegboard system	15.8601	2.2959	6.908	1.0000	2.5208
132	Operate a terminal to a computer system	7.7411	2.3275	3.326	1.3750	2.4375

Teachers-employees and frequency by medium business

The results of one-way analysis of variance tests for teachers-employees and frequency by medium businesses for each task are shown in Table 9. Of the 132 tasks listed, teachers rated 128 tasks higher than entry-level employees. In the categories of journals maintained; ledgers maintained; record(post); working papers; depreciation; inventories; business mathematics calculations; payroll and statements there was a significant difference between the opinions of teachers and entry-level employees on most tasks. Teachers and entry-level employees did not disagree on the preparation of payroll tax reports, operating equipment and data processing activities. In the category of financial statement analysis teachers and entry-level employees did not disagree on basic analysis tools but disagreed on the more complex analytical tools.

Table 9. One-way analysis of variance on opinions of teachers and entry-level employees of medium businesses on frequency--significance at .05 level indicated by *

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
<u>Journals Maintained</u>						
1	General	17.6458	1.2867	13.715*	2.2500	3.8542
2	Cash receipts	4.2976	1.7762	2.420	3.5000	4.2917
3	Cash payments	11.4405	1.6281	7.027*	3.0000	4.2917
4	Check register	1.3125	2.3183	0.566	3.3750	3.8125
5	Combined cash	11.8125	2.0058	5.889*	2.7500	4.0625
6	Sales	20.0119	1.5100	13.253*	2.3750	4.0833
7	Sales returns and allowances	18.5744	1.8399	10.095*	1.6250	3.2708
8	Purchases	36.6696	1.3461	27.242*	1.6250	3.9375
9	Purchase returns and allowances	12.9643	1.9606	6.612*	1.8750	3.2500
10	Voucher register	15.0030	1.9996	7.503*	2.0000	3.4792
11	Petty cash register	21.0000	1.7593	11.937*	2.0000	3.7500
<u>Ledgers Maintained</u>						
12	General	26.2976	0.7762	33.878*	2.0000	3.9583
13	Accounts receivable	31.5744	0.8954	35.261*	2.1250	4.2708
14	Notes receivable	8.6786	1.4606	5.942*	1.8750	3.0000
15	Payroll	1.1905	1.3272	0.897	3.0000	3.4167
16	Accounts or vouchers payable	19.5268	1.1539	16.922*	2.2500	3.9375
17	Plant (fixed assets)	2.1696	0.9595	2.261	1.7500	2.3125
18	Materials and stores ledgers	11.4405	1.5471	7.395*	1.6250	2.9167

Table 9 continued.

Task Number	Task Description	Mean Squares			Means	
		Between	Within	F Ratio	Employees	Teachers
<u>Initiate or Prepare</u>						
20	Data for electronic equipment	0.1071	2.8750	0.037	3.0000	3.1250
21	Adjusting entries	0.4286	1.2130	0.353	2.2500	2.5000
22	Closing entries	9.3333	0.9221	10.122*	1.3750	2.5417
23	Entries to adjust inventory ledger cards	11.4405	0.6281	18.215*	1.0000	2.2917
24	Entries for purchase of materials	3.2411	1.7812	1.820	2.6250	3.3125
25	Entries for issuance of materials	16.7411	2.0590	8.131*	1.6250	3.1875
27	Expense accounts	6.2976	1.5540	4.052*	2.5000	3.4583
28	Bank deposits	5.0030	1.2774	3.917	3.5000	4.3542
29	Withholding tax calculation	2.6786	1.1713	2.287	2.5000	3.1250
30	Entries for depreciation	4.2976	0.6397	6.719*	1.3750	2.1667
31	Entries for bad debts	7.4405	0.6559	11.345*	1.2500	2.2917
<u>Record (post)</u>						
32	Entries in ledgers from journals	19.0476	1.0123	18.815*	2.5000	4.1667
33	Adjusting entries	3.6458	0.8214	4.439*	1.8750	2.6042
34	Closing entries	5.0030	0.8700	5.751*	1.7500	2.6042
35	Purchase of materials	29.1696	1.1794	24.733*	1.3750	3.4375
36	Issuance of materials	25.7411	1.7813	14.451*	1.3750	3.3125
37	Opening a set of books	2.3333	0.9776	2.387	1.1250	1.7083
38	Data in ledgers from special journal	28.0030	1.2774	21.922*	1.2500	3.2708

Table 9 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
<u>Maintain, Analyze or Do</u>						
39	Payroll tax records	0.4286	1.0023	0.428	2.8750	3.1250
40	Sales tax records	8.6786	1.1644	7.454*	1.8750	3.0000
41	Perpetual inventories	18.5744	1.6917	10.979*	1.6250	3.2708
42	Add (foot) and balance ledger accounts	15.8601	1.2404	12.787*	1.7500	3.2708
43	Add (foot), balance and total columns in special journal	13.3601	0.8052	16.593*	1.7500	3.1458
44	Rule and balance accounts	5.5030	1.1570	4.756*	2.0000	2.8958
45	Verify balances of control accounts with subsidiary ledger	4.0744	0.7010	5.812*	2.3750	3.1458
46	Discount notes	11.8125	1.4688	8.043*	1.2500	2.5625
47	Work with promissory notes	8.2601	1.1825	7.070*	1.3750	2.4792
48	Checking account	9.6696	1.3947	6.933*	3.2500	4.4375
49	Petty cash records	14.1696	1.4595	9.709*	2.7500	4.1875
<u>Working Papers Used</u>						
50	Trial balance	21.0000	0.6204	33.851*	1.2500	3.0000
51	Post-closing trial balance	16.7411	0.5706	29.339*	1.2500	2.8125
52	Worksheet	17.1905	0.6698	25.667*	1.2500	2.8333
<u>Prepare Computations for</u>						
53	Straight line depreciation	5.0030	0.7033	7.113*	1.2500	2.1042
54	Units of production depreciation	3.4405	0.6211	5.539*	1.1250	1.8333

Table 9 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
55	Sum-of-the-years digits depreciation	3.0476	0.5702	5.345*	1.1250	1.7917
56	Declining balance depreciation	4.0744	0.6177	6.596*	1.1250	1.8958
57	Depletion	3.4405	0.5471	6.289*	1.1250	1.8333
58	Uncollectible accounts	2.5030	1.0899	2.297	1.8750	2.4792
59	Inventory amount on hand	11.4405	0.9522	12.015*	1.2500	2.5417
60	Inventory physical count	6.2976	0.6767	9.306*	1.3750	2.3333
61	Perpetual inventory	14.1696	1.3669	10.366*	1.2500	2.6875
62	FIFO inventory	5.2500	0.5787	9.072*	1.0000	1.8750
63	LIFO inventory	4.7619	0.4938	9.643*	1.0000	1.8333
64	Weighted average inventory	4.5268	0.5058	8.950*	1.0000	1.8125
65	Specific inventory	3.2411	0.5590	5.798*	1.1250	1.8125
66	Interest receivable	3.4405	0.8410	4.091*	1.7500	2.4583
67	Interest payable	7.1458	0.8885	8.043*	1.5000	2.5208
68	Markup	22.0119	1.5656	14.060*	1.3750	3.1667
69	Markdown	27.4286	1.5208	18.035*	1.1250	3.1250
70	Trade discounts	19.0476	2.0586	9.253*	1.7500	3.4167
71	Cash discount	21.0000	1.9167	10.957*	1.7500	3.5000
73	Figures payroll	6.2976	0.9614	6.550*	2.5000	3.4583
74	Overtime	7.1458	1.0367	6.893*	2.5000	3.5208
75	Shift premiums	10.7143	1.2778	8.385*	2.0000	3.2500
76	Vacation and holiday pay	9.0030	1.2566	7.165*	1.8750	3.0208
77	Bonuses	5.0030	1.2959	3.861	2.0000	2.8542
78	Pension and annuity payments	7.1458	1.3700	5.216*	1.7500	2.7708
	Payroll taxes:					
81	FICA	5.5030	1.0992	5.007*	2.3750	3.2708
82	State unemployment	3.8571	1.2130	3.180	2.2500	3.0000

Table 9 continued.

Task Number	Task Description	Mean Squares			Means	
		Between	Within	F Ratio	Employees	Teachers
83	Federal unemployment	5.2500	1.2384	4.239*	2.1250	3.0000
84	Federal withholding	5.5030	1.1362	4.843*	2.3750	3.2708
85	State withholding	5.0030	1.1547	4.333*	2.3750	3.2292
86	Workmen's compensation	2.3333	1.3364	1.746	2.2500	2.8333
	Statements:					
87	Balance sheet	11.0744	0.6825	16.227*	1.3750	2.6458
88	Income statement	11.0744	0.6454	17.158*	1.3750	2.6458
89	Capital statement	14.5833	0.4545	32.088*	1.1250	2.5833
90	Retained earnings statement	15.0030	0.4441	33.786*	1.0000	2.4792
91	Statement of changes in financial position	9.6696	0.6169	15.675*	1.0000	2.1875
92	Cash flow statement	4.7619	0.8480	5.615*	1.3750	2.2083
	Tax Reports:					
93	Employee withholding	2.0119	0.5656	3.557	1.8750	2.4167
94	FICA	1.8601	0.4880	3.811	1.8750	2.3958
95	Federal unemployment compensation	1.0744	0.4880	2.201	1.8750	2.2708
96	State unemployment compensation	1.0744	0.4880	2.201	1.8750	2.2708
97	State sales and use tax	1.0744	0.5621	1.911	1.8750	2.2708
98	Schedule of accounts receivable	4.2976	0.5656	7.599*	2.1250	2.9167
99	Schedule of accounts payable	4.2976	0.5656	7.599*	2.1250	2.9167
	<u>Financial Statement Analysis</u>					
	Ratios and percentages:					
100	Current ratio	1.7143	0.5949	2.882	1.1250	1.6250
101	Acid test ratio	1.8601	0.4441	4.189	1.0000	1.5208

Table 9 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
102	Percentage of increase or decrease	0.7619	0.8110	0.940	1.3750	1.7083
103	Trend percentages	0.7619	0.5772	1.320	1.2500	1.5833
104	Common size statements	0.5833	0.5448	1.071	1.2500	1.5417
105	Turnover of accounts receivable	4.2976	0.8989	4.781*	1.1250	1.9167
106	Days sales uncollected	5.2500	1.6088	3.263	1.1250	2.0000
107	Turnover of merchandise inventory	2.1696	0.6447	3.365	1.2500	1.8125
108	Capital contributions of owners and creditors	3.6458	0.5829	6.254*	1.0000	1.7292
109	Pledged plant assets to long-term liabilities	1.8601	0.3700	5.028*	1.0000	1.5208
110	Times fixed interest charges were earned	2.0119	0.3688	5.455*	1.0000	1.5417
111	Rate of return on total assets employed	1.5744	0.3329	4.729*	1.0000	1.4792
112	Rate of return on common stockholders equity	1.3125	0.3831	3.426	1.1250	1.5625
113	Earnings per share of common stock	2.0119	0.4730	4.254*	1.1250	1.6667
114	Price earnings ratio	1.8601	0.4047	4.596*	1.1250	1.6458
	Comparative analysis:					
115	Balance sheet	2.1696	0.9780	2.218	1.5000	2.0625
116	Income statement	2.1696	0.9780	2.218	1.5000	2.0625
117	Analysis of accounts receivable	3.0476	0.9012	3.382	1.5000	2.1667
118	Dividends per share	1.8601	0.6292	2.956	1.2500	1.7708

Table 9 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
<u>Operate</u>						
119	Ten-key adding machine	0.5030	0.3029	1.661	4.6250	4.8958
120	Calculator	0.6696	0.6169	1.086	4.5000	4.8125
121	Dictating equipment	1.0744	2.5459	0.422	3.0000	3.3958
122	Telephone equipment	0.1458	1.8329	0.080	4.5000	4.3542
123	Cash register	35.3601	2.2496	15.718*	2.0000	4.2708
125	Bookkeeping machine	34.0744	2.0644	16.505*	1.5000	3.7292
<u>Perform Data Processing Activities</u>						
126	Prepare input for automated processing	4.5268	2.8090	1.612	3.8750	3.0625
127	Utilize printed output	0.9643	2.9236	0.330	3.3750	3.0000
128	Operate computer	8.0476	2.1628	3.721	1.1250	2.2083
129	Write programs	4.0744	1.2681	3.213	1.0000	1.7708
130	Initiate and prepare flowcharts	2.3333	0.9776	2.387	1.1250	1.7083
131	Use pegboard system	7.1458	2.5552	2.797	1.5000	2.5208
132	Operate a terminal to a computer system	2.1696	2.5313	0.857	1.8750	2.4375

Teachers-employees and frequency by large business

The results of one-way analysis of variance tests for teachers-employees and frequency by large businesses for each task are shown in Table 10. Of the 132 tasks listed, teachers rated 119 tasks higher than entry-level employees. In the categories of journals maintained; working papers; maintain, analyze or do; depreciation; inventories; business mathematical calculations; statements; tax reports and financial statement analysis, there was a significant difference between the opinions of teachers and entry-level employees on most tasks. Teachers and entry-level employees did not disagree on most of the tasks relating to payroll preparation and the performing of data processing activities.

Table 10. One-way analysis of variance on opinions of teachers and entry-level employees of large businesses on frequency--significance at .05 level indicated by *

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
<u>Journals Maintained</u>						
1	General	17.6458	1.4348	12.298*	2.2500	3.8542
2	Cash receipts	4.2976	1.7762	2.420	3.5000	4.2917
3	Cash payments	19.0476	1.6628	11.455*	2.6250	4.2917
4	Check register	29.1696	2.0891	13.963*	1.7500	3.8125
5	Combined cash	49.5268	1.6053	30.852*	1.3750	4.0625
6	Sales	8.0476	1.4753	5.455*	3.0000	4.0833
7	Sales returns and allowances	11.0744	1.9533	5.670*	2.0000	3.2708
8	Purchases	19.5268	1.5984	12.217*	2.2500	3.9375
9	Purchase returns and allowances	27.4286	1.6759	16.366*	1.2500	3.2500
10	Voucher register	34.0744	1.6200	21.034*	1.2500	3.4792
11	Petty cash register	42.8571	1.3796	31.064*	1.2500	3.7500
<u>Ledgers Maintained</u>						
12	General	12.1905	1.0332	11.799*	2.6250	3.9583
13	Accounts receivable	1.0744	0.8584	1.252	3.8750	4.2708
14	Notes receivable	5.2500	1.4606	3.594	2.1250	3.0000
15	Payroll	1.4405	1.1582	1.244	3.8750	3.4167
16	Accounts or vouchers payable	7.7411	1.2164	6.364*	2.8750	3.9375
17	Plant (fixed assets)	7.7411	0.8484	9.125*	1.2500	2.3125
18	Materials and stores ledgers	19.0476	1.4290	13.329*	1.2500	2.9167

Table 10 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
<u>Initiate or Prepare</u>						
20	Data for electronic equipment	0.1071	2.7269	0.039	3.0000	3.1250
21	Adjusting entries	0.4286	1.2870	0.333	2.7500	2.5000
22	Closing entries	4.2976	1.1373	3.779	1.7500	2.5417
23	Entries to adjust inventory ledger cards	7.4405	0.6929	10.738*	1.2500	2.2917
24	Entries for purchase of materials	7.7411	1.7743	4.363*	2.2500	3.3125
25	Entries for issuance of materials	32.8125	1.8762	17.489*	1.0000	3.1875
27	Expense accounts	33.4405	1.2114	27.604*	1.2500	3.4583
28	Bank deposits	0.0030	0.7936	0.004	4.3750	4.3542
29	Withholding tax calculations	0.4286	1.2431	0.345	3.3750	3.1250
30	Entries for depreciation	5.7619	0.6327	9.107*	1.2500	2.1667
31	Entries for bad debts	4.2976	0.8503	5.054*	1.5000	2.2917
<u>Record (post)</u>						
32	Entries in ledgers from journals	19.0476	1.0123	18.815*	2.5000	4.1667
33	Adjusting entries	0.8601	0.8329	1.033	2.2500	2.6042
34	Closing entries	12.5744	0.6478	19.412*	1.2500	2.6042
35	Purchase of materials	14.1696	1.5521	9.129*	2.0000	3.4375
36	Issuance of materials	36.6696	1.7095	21.451*	1.0000	3.3125
37	Opening a set of books	3.4405	0.9614	3.579	1.0000	1.7083
38	Data in ledgers from special journal	14.8601	1.4996	10.576*	1.7500	3.2708

Table 10 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
<u>Maintain, Analyze or Do</u>						
39	Payroll tax records	0.1071	1.0231	0.105	3.0000	3.1250
40	Sales tax records	0.9643	1.3681	0.705	2.6250	3.0000
41	Perpetual inventories	35.3601	1.5089	23.435*	1.0000	3.2708
42	Add (foot) and balance ledger accounts	9.0030	1.3029	6.910*	2.1250	3.2708
43	Add (foot), balance and total columns in special journal	5.5030	0.8422	6.534*	2.2500	3.1458
44	Rule and balance accounts	5.5030	1.1200	4.913*	2.0000	2.8958
45	Verify balances of control accounts with subsidiary ledger	7.1458	0.7195	9.931*	2.1250	3.1458
46	Discount notes	16.7411	1.4039	11.924*	1.0000	2.5625
47	Work with promissory notes	10.3601	1.1755	8.813*	1.2500	2.4792
48	Checking account	7.7411	1.2535	6.176*	3.3750	4.4375
49	Petty cash records	14.1696	1.3113	10.805*	2.7500	4.1875
<u>Working Papers Used</u>						
50	Trial balance	6.8571	0.8519	8.050*	2.0000	3.0000
51	Post-closing trial balance	16.7411	0.5706	29.339*	1.2500	2.8125
52	Worksheet	12.1905	0.7160	17.025*	1.5000	2.8333
<u>Prepare Computations For</u>						
53	Straight line depreciation	2.5030	0.7867	3.182	1.5000	2.1042

Table 10 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
54	Units of production depreciation	4.7619	0.6049	7.872*	1.0000	1.8333
55	Sum-of-the-years digits depreciation	4.2976	0.5540	7.757*	1.0000	1.7917
56	Declining balance depreciation	1.8601	0.6732	2.763	1.3750	1.8958
57	Depletion	4.7619	0.5309	8.970*	1.0000	1.8333
58	Uncollectible accounts	2.5030	1.1640	2.150	1.8750	2.4792
59	Inventory amount on hand	5.7619	0.9961	5.784*	1.6250	2.5417
60	Inventory physical count	6.2976	0.6767	9.306*	1.3750	2.3333
61	Perpetual inventory	16.7411	1.3183	12.699*	1.1250	2.6875
62	FIFO inventory	2.6786	0.6435	4.162*	1.2500	1.8750
63	LIFO inventory	4.7619	0.4938	9.643*	1.0000	1.8333
64	Weighted average inventory	2.1696	0.5706	3.802	1.2500	1.8125
65	Specific inventory	3.2411	0.5590	5.798*	1.1250	1.8125
66	Interest receivable	10.0119	0.7670	13.054*	1.2500	2.4583
67	Interest payable	9.0030	0.8492	10.602*	1.3750	2.5208
68	Markup	32.1905	1.4938	21.549*	1.0000	3.1667
69	Markdown	30.9643	1.5046	20.579*	1.0000	3.1250
70	Trade discounts	25.1905	2.0679	12.182*	1.5000	3.4167
71	Cash discount	27.4286	1.9259	14.242*	1.5000	3.5000
73	Figures payroll	0.5833	0.8410	0.694	3.7500	3.4583
74	Overtime	0.0744	0.9603	0.077	3.6250	3.5208
75	Shift premiums	0.9643	1.4792	0.652	2.8750	3.2500
76	Vacation and holiday pay	0.8601	1.4232	0.604	3.3750	3.0208
77	Bonuses	3.6458	1.3121	2.779	2.1250	2.8542
78	Pension and annuity payments	9.0030	1.2658	7.112*	1.6250	2.7708
	Payroll taxes:					
81	FICA	0.0030	0.8329	0.004	3.2500	3.2708

Table 10 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
82	State unemployment	0.1071	0.9792	0.109	2.8750	3.0000
83	Federal unemployment	0.9643	1.0347	0.932	2.6250	3.0000
84	Federal withholding	0.5030	0.9533	0.528	3.0000	3.2708
85	State withholding	0.3601	0.9348	0.385	3.0000	3.2292
86	Workmen's compensation	2.3333	1.1512	2.027	2.2500	2.8333
	Statements:					
87	Balance sheet	11.0744	0.6825	16.227*	1.3750	2.6458
88	Income statement	11.0744	0.6454	17.158*	1.3750	2.6458
89	Capital statement	12.1905	0.5031	35.341*	1.2500	2.5833
90	Retained earnings statement	10.3601	0.5089	20.359*	1.2500	2.4792
91	Statement of changes in financial position	6.0268	0.6817	8.841*	1.2500	2.1875
92	Cash flow statement	6.2976	0.7670	8.211*	1.2500	2.2083
	Tax reports:					
93	Employee withholding	4.2976	0.6211	6.919*	1.6250	2.4167
94	FICA	4.0744	0.5436	7.495*	1.6250	2.3958
95	Federal unemployment compen- sation	5.5030	0.4695	11.720*	1.3750	2.2708
96	State unemployment compen- sation	5.5030	0.4695	11.720*	1.3750	2.2708
97	State sales and use tax	1.8601	0.5737	3.242	1.7500	2.2708
98	Schedule of accounts receivable	1.1905	0.6235	1.909	2.5000	2.9167
99	Schedule of accounts payable	2.0119	0.6582	3.057	2.3750	2.9167

Table 10 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
<u>Financial Statement Analysis</u>						
Ratios and percentages:						
100	Current ratio	0.9643	0.6435	1.498	1.2500	1.6250
101	Acid test ratio	1.8601	0.4441	4.189*	1.0000	1.5208
102	Percentage of increase or decrease	1.4405	0.8040	1.792	1.2500	1.7083
103	Trend percentages	2.3333	0.5123	4.554*	1.0000	1.5833
104	Common size statements	2.0119	9.4799	4.192*	1.0000	1.5417
105	Turnover of accounts receivable	5.7619	0.8827	6.527*	1.0000	1.9167
106	Days sales uncollected	6.8571	1.5926	4.306*	1.0000	2.0000
107	Turnover of merchandise inventory	2.1696	0.6447	3.365	1.2500	1.8125
108	Capital contributions of owners and creditors	3.6458	0.5829	6.254*	1.0000	1.7292
109	Pledged plant assets to long-term liabilities	1.8601	0.3700	5.028*	1.0000	1.5208
110	Times fixed interest charges were earned	2.0119	0.3688	5.455*	1.0000	1.5417
111	Rate of return on total assets employed	1.5744	0.3329	4.729*	1.0000	1.4792
112	Rate of return on common stockholders equity	2.1696	0.3669	5.913*	1.0000	1.5625
113	Earnings per share of common stock	3.0476	0.4568	6.672*	1.0000	1.6667

Table 10 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
114	Price earnings ratio	2.8601	0.3885	7.362*	1.0000	1.6458
	Comparative analysis:					
115	Balance sheet	2.1696	0.9780	2.218	1.5000	2.0625
116	Income statement	2.1696	0.9780	2.218	1.5000	2.0625
117	Analysis of accounts receivable	5.7619	0.8179	7.045*	1.2500	2.1667
118	Dividends per share	4.0744	0.5644	7.219*	1.0000	1.7708
	<u>Operate</u>					
119	Ten-key adding machine	1.0744	0.4163	2.581	4.5000	4.8958
120	Calculator	0.2411	0.3576	0.674	5.0000	4.8125
121	Dictating equipment	39.3601	1.9533	20.150*	1.0000	3.3958
122	Telephone equipment	2.8601	1.5737	1.817	5.0000	4.3542
123	Cash register	52.6458	2.0644	25.501*	1.5000	4.2708
125	Bookkeeping machine	51.0744	1.8052	28.293*	1.0000	3.7292
	<u>Perform Data Processing Activities</u>					
126	Prepare input for automated processing	1.3125	2.7928	0.470	3.5000	3.0625
127	Utilize printed output	1.7143	2.8148	0.609	3.5000	3.0000
128	Operate computer	3.4405	2.4059	1.430	1.5000	2.2083
129	Write programs	0.5030	1.5274	0.329	1.5000	1.7708
130	Initiate and prepare flowcharts	1.4405	0.9892	1.456	1.2500	1.7083

Table 10 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
131	Use pegboard system	15.8601	2.2959	6.908*	1.0000	2.5208
132	Operate a terminal to a computer system	2.1696	2.5313	0.857	1.8750	2.4375

Teachers-employees and performance by small business

The results of one-way analysis of variance tests for teachers-employees and performance by small business for each task are shown in Table 11. Of the 132 tasks listed, teachers rated 110 tasks higher than entry-level employees. In the categories of working papers; inventories; business mathematical calculations and preparing statements, there was a significant difference in the opinions of teachers and entry-level employees when considering performance by small business. In the categories of journals maintained; ledgers maintained; initiate or prepare; record (post); maintain, analyze or do; payroll calculations; financial statement analysis; operate equipment and perform data processing activities the teachers and entry-level employees did not disagree on most tasks.

Table 11. One-way analysis of variance on opinions of teachers and entry-level employees of small businesses on performance--significance at .05 level indicated by *

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
<u>Journals Maintained</u>						
1	General	1.7143	1.0833	1.582	3.7500	3.2500
2	Cash receipts	0.2411	1.2535	0.192	3.3750	3.5625
3	Cash payments	0.8601	1.3862	0.620	3.1250	3.4792
4	Check register	1.4405	1.5448	0.932	2.7500	3.2083
5	Combined cash	25.1905	1.1420	22.059*	1.5000	3.4167
6	Sales	1.5744	1.2936	1.217	2.8750	3.3542
7	Sales returns and allowances	2.0119	1.5448	1.302	2.2500	2.7917
8	Purchases	4.5268	1.2650	3.578	1.5000	3.3125
9	Purchase returns and allowances	11.0744	1.4163	7.819*	1.5000	2.7708
10	Voucher register	14.5833	1.0725	13.597*	1.5000	2.9583
11	Petty cash register	34.0744	0.9348	36.451*	1.0000	3.2292
<u>Ledgers Maintained</u>						
12	General	0.1458	1.1292	0.129	3.7500	3.6042
13	Accounts receivable	1.0744	0.9163	1.173	4.2500	3.8542
14	Notes receivable	5.5030	1.5529	3.544	2.1250	3.0208
15	Payroll	1.0744	1.4348	0.749	4.0000	3.6042
16	Accounts or vouchers payable	0.0268	1.3669	0.020	3.5000	3.4375
17	Plant (fixed assets)	0.8601	1.5737	0.547	3.0000	2.6458
18	Materials and stores ledgers	0.8601	1.4441	0.596	2.5000	2.8542

Table 11 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
<u>Initiate or Prepare</u>						
20	Data for electronic equipment	4.0744	1.7311	2.354	1.7500	2.5208
21	Adjusting entries	5.2500	1.6528	3.176	2.0000	2.8750
22	Closing entries	2.8601	1.8885	1.514	2.2500	2.8958
23	Entries to adjust inventory ledger cards	6.0268	1.5868	3.798	1.6250	2.5625
24	Entries for purchase of materials	1.4405	1.7762	0.811	2.5000	2.9583
25	Entries for issuance of materials	14.1696	1.5405	9.198*	1.3750	2.8125
27	Expense accounts	4.7619	1.4035	3.393	2.3750	3.2083
28	Bank deposits	2.6786	1.0880	2.462	4.2500	3.6250
29	Withholding tax calculations	1.3125	1.4039	0.935	3.7500	3.3125
30	Entries for depreciation	1.3125	1.7164	0.765	2.1250	2.5625
31	Entries for bad debts	1.0744	1.5714	0.684	2.1250	2.5208
<u>Record (post)</u>						
32	Entries in ledgers from journals	18.1071	1.0880	16.643*	2.2500	3.8750
33	Adjusting entries	4.7619	1.5401	3.092	2.2500	3.0833
34	Closing entries	1.5744	1.5621	1.008	2.6250	3.1042
35	Purchase of materials	9.0030	1.3329	6.765*	2.0000	3.1458
36	Issuance of materials	11.8125	1.4502	8.145*	1.7500	3.0625
37	Opening a set of books	4.7619	2.1327	2.233	1.7500	2.5833
38	Data in ledgers from special journal	11.4405	1.4429	7.929*	2.0000	3.2917

Table 11 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
<u>Maintain, Analyze or Do</u>						
39	Payroll tax records	1.5744	0.9695	1.624	3.8750	3.3958
40	Sales tax records	12.9643	1.2454	10.410*	2.0000	3.3750
41	Perpetual inventories	18.1071	1.2940	13.993*	1.3750	3.0000
42	Add (foot) and balance ledger accounts	0.8601	1.3862	0.620	3.1250	3.4792
43	Add (foot), balance and total columns in special journal	1.3125	1.3669	0.960	3.0000	3.4375
44	Rule and balance accounts	21.5030	1.6570	12.977*	1.5000	3.2708
45	Verify balances of control accounts with subsidiary ledger	4.5268	1.4016	3.230	2.6250	3.4375
46	Discount notes	11.0744	1.7566	6.305*	1.3750	2.6458
47	Work with promissory notes	4.2976	1.5448	2.782	1.7500	2.5417
48	Checking account	5.5030	1.2311	4.470*	3.0000	3.8958
49	Petty cash records	16.2976	1.1767	13.850*	2.1250	3.6667
<u>Working Papers Used</u>						
50	Trial balance	9.6696	1.7280	5.596*	2.2500	3.4375
51	Post-closing trial balance	8.6786	1.6806	5.164*	2.2500	3.3750
52	Worksheet	1.1905	1.6813	0.708	2.8750	3.2917

Table 11 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
<u>Prepare Computations For</u>						
53	Straight line depreciation	3.4405	1.6026	2.147	1.8750	2.5833
54	Units of production depreciation	6.2976	1.3804	4.562*	1.0607	1.1910
55	Sum-of-the-years digits depreciation	1.5744	1.5529	1.014	1.8750	2.3542
56	Declining balance depreciation	1.8601	1.5251	1.220	1.8750	2.3958
57	Depletion	4.5268	1.2442	3.638	1.3750	2.1875
58	Uncollectible accounts	2.1696	1.3669	1.587	2.0000	2.5625
59	Inventory amount on hand	22.5268	1.2465	18.072*	1.0000	2.8125
60	Inventory physical count	15.8601	1.3399	11.837*	1.3750	2.8958
61	Perpetual inventory	16.7411	1.0336	16.197*	1.0000	2.5625
62	FIFO inventory	8.6786	1.0602	8.186*	1.0000	2.1250
63	LIFO inventory	8.0476	0.9938	8.098*	1.0000	2.0833
64	Weighted average inventory	7.4405	1.1096	6.706*	1.0000	2.0417
65	Specific inventory	6.5744	1.0181	6.457*	1.0000	1.9792
66	Interest receivable	3.4405	1.3804	2.492	1.8750	2.5833
67	Interest payable	4.5268	1.3924	3.251	1.8750	2.6875
68	Markup	15.0030	1.1084	13.536*	1.3750	2.8542
69	Markdown	15.0030	1.1084	13.536*	1.3750	2.8542
70	Trade discounts	12.1905	1.1813	10.319*	1.6250	2.9583
71	Cash discount	10.3601	1.2473	8.306*	1.8750	3.1042
73	Figures payroll	1.4405	1.0841	1.329	3.8750	3.4167
74	Overtime	4.2976	1.2137	3.541	2.6250	3.4167
75	Shift premiums	11.8125	1.4873	7.942*	1.7500	3.0625
76	Vacation and holiday pay	0.1905	1.4198	0.134	3.0000	3.1667
77	Bonuses	1.5744	1.4996	1.050	2.5000	2.9792
78	Pension and annuity payments	0.1071	1.6829	0.064	2.6250	2.7500

Table 11 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
	Payroll taxes:					
81	FICA	0.8601	1.3329	0.645	3.5000	3.1458
82	State unemployment	1.4405	1.4059	1.025	3.5000	3.0417
83	Federal unemployment	1.4405	1.4059	1.025	3.5000	3.0417
84	Federal withholding	0.5030	1.2311	0.409	3.5000	3.2292
85	State withholding	0.5030	1.2311	0.409	3.5000	3.2292
86	Workmen's compensation	0.2411	1.4688	0.164	3.0000	2.8125
	Statements:					
87	Balance sheet	13.7619	1.7068	8.063*	1.7500	3.1667
88	Income statement	4.0744	1.7380	2.344	2.3750	3.1458
89	Capital statement	12.9643	1.4051	9.227*	1.6250	3.0000
90	Retained earnings statement	7.7411	1.5590	4.965*	1.6250	2.6875
91	Statement of changes in financial position	3.8571	1.7685	2.181	1.7500	2.5000
92	Cash flow statement	2.8601	1.6478	1.736	1.7500	2.3958
	Tax Reports:					
93	Employee withholding	0.0119	1.6397	0.007	3.1250	3.0833
94	FICA	0.0119	1.5656	0.008	3.1250	3.0833
95	Federal unemployment compen- sation	0.0268	1.4757	0.018	3.1250	3.0625
96	State unemployment compen- sation	0.0744	1.5529	0.048	3.1250	3.0208
97	State sales and use tax	3.2411	1.5683	2.067	2.3750	3.0625
98	Schedule of accounts receivable	0.7619	1.2346	0.617	3.0000	3.3333
99	Schedule of accounts payable	2.3333	1.1512	2.027	2.7500	3.3333

Table 11 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
<u>Financial Statement Analysis</u>						
Ratios and percentages:						
100	Current ratio	4.0744	1.1200	3.638	1.0000	1.7708
101	Acid test ratio	3.8571	1.0926	3.530	1.0000	1.7500
102	Percentage of increase or decrease	2.6786	1.3472	1.988	1.2500	1.8750
103	Trend percentages	2.0119	1.2485	1.612	1.2500	1.7917
104	Common size statements	3.2411	1.0799	3.001	1.0000	1.6875
105	Turnover of accounts receivable	6.8571	1.2593	5.445*	1.0000	2.0000
106	Days sales uncollected	5.5030	1.1941	4.609*	1.0000	1.8958
107	Turnover of merchandise inventory	5.7619	1.1790	4.887*	1.0000	1.9167
108	Capital contributions of owners and creditors	3.6458	1.3792	2.643	1.2500	1.9792
109	Pledged plant assets to long- term liabilities	3.8571	1.0185	3.787	1.0000	1.7500
110	Times fixed interest charges were earned	4.5268	1.0613	4.265*	1.0000	1.8125
111	Rate of return on total assets employed	3.6458	1.0274	3.549	1.0000	1.7292
112	Rate of return on common stock- holders equity	4.0744	1.0459	3.896	1.0000	1.7708
113	Earnings per share of common stock	2.3333	1.1142	2.094	1.2500	1.8333
114	Price earnings ratio	2.0119	1.1003	1.828	1.2500	1.7917

Table 11 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
	<u>Comparative analysis:</u>					
115	Balance sheet	3.2411	1.8762	1.728	1.7500	2.4375
116	Income statement	3.2411	1.8762	1.728	1.7500	2.4375
117	Analysis of accounts receivable	3.4405	1.5077	2.282	1.7500	2.4583
118	Dividends per share	8.0476	1.2160	6.618*	1.0000	2.0833
	<u>Operate</u>					
119	Ten-key adding machine	1.7143	0.8727	1.964	3.6250	4.1250
120	Calculator	0.0119	0.8133	0.015	4.0000	4.0417
121	Dictating equipment	4.5268	1.6725	2.707	2.2500	3.0625
122	Telephone equipment	3.6458	1.2010	3.036	4.3750	3.6458
123	Cash register	22.5268	1.3947	16.152*	1.7500	3.5625
125	Bookkeeping machine	12.1905	1.3480	9.043*	1.8750	3.2083
	<u>Perform Data Processing Activities</u>					
126	Prepare input for automated processing	0.5030	1.8422	0.273	2.2500	2.5208
127	Utilize printed output	0.4286	1.7685	0.242	2.2500	2.5000
128	Operate computer	0.7619	1.3086	0.582	1.5000	1.8333
129	Write programs	0.2411	1.3391	0.180	1.5000	1.6875
130	Initiate and prepare flowcharts	4.0744	0.9718	4.192*	1.0000	1.7708
131	Use pegboard system	10.7143	1.4259	7.514*	1.0000	2.2500
132	Operate a terminal to a computer system	4.0744	1.3422	3.036	1.2500	2.0208

Teachers-employees and performance by medium business

The results of one-way analysis of variance tests for teachers-employees and performance by medium business for each task are shown in Table 12. Of the 132 tasks listed, teachers rated 124 tasks higher than entry-level employees. The teachers and entry-level employees did not disagree when considering performance in medium businesses in all categories. There were some significant differences involving some journals, working papers, inventory calculations, business mathematical calculations and the preparation of statements.

Table 12. One-way analysis of variance on opinions of teachers and entry-level employees of medium businesses on performance--significance at .05 level indicated by *

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
<u>Journals Maintained</u>						
1	General	3.8571	1.2407	3.109	2.5000	3.2500
2	Cash receipts	1.3125	1.3461	0.975	3.1250	3.5625
3	Cash payments	2.5030	1.3121	1.908	2.8750	3.4792
4	Check register	0.0476	1.6443	0.029	3.1250	3.2083
5	Combined cash	4.2976	1.4360	2.993	2.6250	3.4167
6	Sales	8.3601	1.3052	6.405*	2.2500	3.3542
7	Sales returns and allowances	5.7619	1.4591	3.949	1.8750	2.7917
8	Purchases	16.7411	1.1817	14.167*	1.7500	3.3125
9	Purchase returns and allowances	7.1458	1.4441	4.948*	1.7500	2.7708
10	Voucher register	8.0476	1.1628	6.921*	1.8750	2.9583
11	Petty cash register	12.5744	1.2843	9.791*	1.8750	3.2292
<u>Ledgers Maintained</u>						
12	General	8.3601	1.2867	6.498*	2.5000	3.6042
13	Accounts receivable	17.6458	1.2496	14.121*	2.2500	3.8542
14	Notes receivable	5.5030	1.5899	3.461	2.1250	3.0208
15	Payroll	3.6458	1.5251	2.391	2.8750	3.6042
16	Accounts or vouchers payable	4.5268	1.4387	3.147	2.6250	3.4375
17	Plant (fixed assets)	4.0744	1.3677	2.979	1.8750	2.6458
18	Materials and stores ledgers	6.5744	1.2751	5.156*	1.8750	2.8542

Table 12 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
<u>Initiate or Prepare</u>						
20	Data for electronic equipment	2.5030	1.8677	1.340	3.1250	2.5208
21	Adjusting entries	1.7143	1.8727	0.915	2.3750	2.8750
22	Closing entries	13.3601	1.7496	7.636*	1.5000	2.8958
23	Entries to adjust inventory ledger cards	16.7411	1.4039	11.924*	1.0000	2.5625
24	Entries for purchase of materials	3.4405	1.8040	1.907	2.2500	2.9583
25	Entries for issuance of materials	6.0268	1.7442	3.455	1.8750	2.8125
27	Expense accounts	4.7619	1.4406	3.306	2.3750	3.2083
28	Bank deposits	1.7143	1.4468	1.185	3.1250	3.6250
29	Withholding tax calculations	2.1696	1.5521	1.398	2.7500	3.3125
30	Entries for depreciation	7.7411	1.6632	4.654*	1.5000	2.5625
31	Entries for bad debts	7.1458	1.5181	4.707*	1.5000	2.5208
<u>Record (post)</u>						
32	Entries in ledgers from journals	12.9643	1.2083	10.729*	2.5000	3.8750
33	Adjusting entries	6.2976	1.6397	3.841	2.1250	3.0833
34	Closing entries	6.5744	1.6547	3.973	2.1250	3.1042
35	Purchase of materials	15.8601	1.3306	11.919*	1.6250	3.1458
36	Issuance of materials	16.7411	1.4595	11.470*	1.5000	3.0625

Table 12 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
37	Opening a set of books	8.0476	2.1420	3.757	1.5000	2.5833
38	Data in ledgers from special journal	22.0119	1.4429	15.255*	1.5000	3.2917
<u>Maintain, Analyze or Do</u>						
39	Payroll tax records	1.0744	1.1755	0.914	3.0000	3.3958
40	Sales tax records	6.8571	1.3171	5.206*	2.3750	3.3750
41	Perpetual inventories	10.7143	1.4352	7.465*	1.7500	3.0000
42	Add (foot) and balance ledger accounts	15.0030	1.3700	10.951*	2.0000	3.4792
43	Add (foot), balance and total columns in special journal	14.1696	1.4039	10.093*	2.0000	3.4375
44	Rule and balance accounts	7.1458	1.8329	3.899	2.2500	3.2708
45	Verify balances of control accounts with subsidiary ledger	4.5268	1.4016	3.230	2.6250	3.4375
46	Discount notes	5.5030	1.8978	2.900	1.7500	2.6458
47	Work with promissory notes	5.7619	1.5517	3.713	1.6250	2.5417
48	Checking account	4.0744	1.2473	3.267	3.1250	3.8958
49	Petty cash records	5.7619	1.2994	4.434*	2.7500	3.6667
<u>Working Papers Used</u>						
50	Trial balance	16.7411	1.6424	10.193*	1.8750	3.4375
51	Post-closing trial balance	15.4286	1.5949	9.674*	1.8750	3.3750
52	Worksheet	13.7619	1.6813	8.185*	1.8750	3.2917

Table 12 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
<u>Prepare Computations For</u>						
53	Straight line depreciation	4.7619	1.5401	3.092	1.7500	2.5833
54	Units of production depreciation	3.4405	1.4174	2.427	1.6250	2.3333
55	Sum-of-the-years digits depreciation	3.6458	1.3862	2.630	1.6250	2.3542
56	Declining balance depreciation	4.0744	1.3584	2.999	1.6250	2.3958
57	Depletion	4.5268	1.1701	3.869	1.3750	2.1875
58	Uncollectible accounts	0.6696	1.5428	0.434	2.2500	2.5625
59	Inventory amount on hand	16.7411	1.3113	12.766*	1.2500	2.8125
60	Inventory physical count	13.3601	1.3052	10.236*	1.5000	2.8958
61	Perpetual inventory	11.8125	1.0984	10.754*	1.2500	2.5625
62	FIFO inventory	5.2500	1.1250	4.667*	1.2500	2.1250
63	LIFO inventory	4.7619	1.0586	4.498*	1.2500	2.0833
64	Weighted average inventory	4.2976	1.1744	3.659	1.2500	2.0417
65	Specific inventory	3.6458	1.0829	3.367	1.2500	1.9792
66	Interest receivable	0.7619	1.4660	0.520	2.2500	2.5833
67	Interest payable	6.0268	1.3299	4.532*	1.7500	2.6875
68	Markup	8.3601	1.2126	6.895*	1.7500	2.8542
69	Markdown	17.6458	0.9904	17.818*	1.2500	2.8542
70	Trade discounts	4.7619	1.4221	3.349	2.1250	2.9583
71	Cash discount	3.6458	1.5251	2.391	2.3750	3.1042
73	Figures payroll	3.0476	1.3179	2.312	2.7500	3.4167
74	Overtime	3.0476	1.2438	2.450	2.7500	3.4167
75	Shift premiums	3.2411	1.6794	1.930	2.3750	3.0625
76	Vacation and holiday pay	4.2976	1.4915	2.881	2.3750	3.1667

Table 12 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
77	Bonuses	2.5030	1.6084	1.556	2.3750	2.9792
78	Pension and annuity payments	5.2500	1.4421	3.640	1.8750	2.7500
	Payroll taxes:					
81	FICA	1.8601	1.3677	1.360	2.6250	3.1458
82	State unemployment	1.1905	1.4406	0.826	2.6250	3.0417
83	Federal unemployment	1.1905	1.4406	0.826	2.6250	3.0417
84	Federal withholding	2.5030	1.2658	1.977	2.6250	3.2292
85	State withholding	2.5030	1.2658	1.977	2.6250	3.2292
86	Workmen's compensation	0.2411	1.4664	0.164	2.6250	2.8125
	Statements:					
87	Balance sheet	11.4405	1.8063	6.334*	1.8750	3.1667
88	Income statement	11.0744	1.7936	6.174*	1.8750	3.1458
89	Capital statement	12.9643	1.4051	9.227*	1.6250	3.0000
90	Retained earnings statement	14.1696	1.4410	9.833*	1.2500	2.6875
91	Statement of changes in financial position	10.7143	1.5833	6.767*	1.2500	2.5000
92	Cash flow statement	5.5030	1.6570	3.321	1.5000	2.3958
	Tax reports:					
93	Employee withholding	1.4405	1.8063	0.797	2.6250	3.0833
94	FICA	1.4405	1.7323	0.832	2.6250	3.0833
95	Federal unemployment compen- sation	1.3125	1.6424	0.799	2.6250	3.0625
96	State unemployment compen- sation	1.0744	1.7195	0.625	2.6250	3.0208
97	State sales and use tax	1.3125	1.6794	0.782	2.6250	3.0625

Table 12 continued.

Task Number	Task Description	Mean Squares			Means	
		Between	Within	F Ratio	Employees	Teachers
98	Schedule of accounts receivable	3.4405	1.2323	2.792	2.6250	3.3333
99	Schedule of accounts payable	3.4405	1.2323	2.792	2.6250	3.3333
<u>Financial Statement Analysis</u>						
Ratios and percentages:						
100	Current ratio	0.1458	1.3769	0.106	1.6250	1.7708
101	Acid test ratio	0.9643	1.1644	0.828	1.3750	1.7500
102	Percentage of increase or decrease	0.1071	1.5694	0.068	1.7500	1.8750
103	Trend percentages	2.0119	1.2485	1.612	1.2500	1.7917
104	Common size statements	0.0268	1.2627	0.021	1.6250	1.6875
105	Turnover of accounts receivable	2.6786	1.3310	2.012	1.3750	2.0000
106	Days sales uncollected	1.8601	1.2658	1.469	1.3750	1.8958
107	Turnover of merchandise inventory	4.2976	1.1952	3.596	1.1250	1.9167
108	Capital contributions of owners and creditors	5.0030	1.3306	3.760	1.1250	1.9792
109	Pledged plant assets to long-term liabilities	2.6786	1.0347	2.589	1.1250	1.7500
110	Times fixed interest charges were earned	3.2411	1.0775	3.008	1.1250	1.8125
111	Rate of return on total assets employed	2.5030	1.0436	2.398	1.1250	1.7292
112	Rate of return on common stockholder's equity	1.0744	1.1177	0.961	1.3750	1.7708

Table 12 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
113	Earnings per share of common stock	1.4405	1.1211	1.285	1.3750	1.8333
114	Price earnings ratio	1.1905	1.1073	1.075	1.3750	1.7917
	Comparative analysis:					
115	Balance sheet	3.2411	1.9132	1.694	1.7500	2.4375
116	Income statement	3.2411	1.9132	1.694	1.7500	2.4375
117	Analysis of accounts receivable	3.4405	1.5448	2.227	1.7500	2.4583
118	Dividends per share	3.4405	1.2878	2.672	1.3750	2.0833
	<u>Operate</u>					
119	Ten-key adding machine	0.1071	0.5694	0.188	4.2500	4.1250
120	Calculator	0.5833	0.8040	0.726	3.7500	4.0417
121	Dictating equipment	0.0268	1.6979	0.016	3.1250	3.0625
122	Telephone equipment	0.8601	1.3885	0.619	4.0000	3.6458
123	Cash register	11.8125	1.5428	7.656*	2.2500	3.5625
125	Bookkeeping machine	17.1905	1.2554	13.693*	1.6250	3.2083
	<u>Perform Data Processing Activities</u>					
126	Prepare input for automated processing	10.3601	1.6570	6.252*	3.7500	2.5208
127	Utilize printed output	6.8571	1.7037	4.025*	3.5000	2.5000
128	Operate computer	1.4405	1.1211	1.285	1.3750	1.8333

Table 12 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
129	Write programs	2.1696	1.0961	1.979	1.1250	1.6875
130	Initiate and prepare flowcharts	1.8601	0.9996	1.861	1.2500	1.7708
131	Use pegboard system	5.2500	1.5718	3.340	1.3750	2.2500
132	Operate a terminal to a computer system	0.8601	1.6084	0.535	2.3750	2.0208

Teachers-employees and performance by large business

The results of one-way analysis of variance tests for teachers-employees and performance by large business for each task are shown in Table 13. Of the 132 tasks listed, teachers rated 114 tasks higher than entry-level employees. In the categories of journals maintained; record(post); maintain, analyze or do; working papers used; depreciation; inventories; business mathematical calculations; statements prepared and operating equipment, there was a significant difference between the opinions of teachers and entry-level employees on most tasks. Teachers and entry-level employees did not disagree on most tasks concerning payroll, financial statement analysis and performing data processing activities.

Table 13. One-way analysis of variance on opinions of teachers and entry-level employees of large businesses on performance--significance at .05 level indicated by *

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
<u>Journals Maintained</u>						
1	General	10.7143	1.0556	10.150*	2.0000	3.2500
2	Cash receipts	1.3125	1.3831	0.949	3.1250	3.5625
3	Cash payments	8.3601	1.2936	6.463*	2.3750	3.4792
4	Check register	12.1905	1.4221	8.572*	1.8750	3.2083
5	Combined cash	25.1905	1.1420	11.059*	1.5000	3.4167
6	Sales	3.6458	1.2010	3.036	2.6250	3.3542
7	Sales returns and allowances	5.7619	1.3110	4.395*	1.8750	2.7917
8	Purchases	14.1696	1.0961	12.928*	1.8750	3.3125
9	Purchase returns and allowances	13.3601	1.3029	10.254*	1.3750	2.7708
10	Voucher register	10.0119	0.8781	22.790*	1.2500	2.9583
11	Petty cash register	26.8601	0.9996	26.870*	1.2500	3.2292
<u>Ledgers Maintained</u>						
12	General	12.5744	1.1663	10.782*	2.2500	3.6042
13	Accounts receivable	0.8601	1.0737	0.801	3.5000	3.8542
14	Notes receivable	5.5030	1.4417	3.817	2.1250	3.0208
15	Payroll	0.0744	1.3978	0.053	3.5000	3.6042
16	Accounts or vouchers payable	4.5268	1.2535	3.611	2.6250	3.4375
17	Plant (fixed assets)	13.3601	1.2311	10.852*	1.2500	2.6458
18	Materials and stores ledgers	17.6458	1.1385	15.499*	1.2500	2.8542

Table 13 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
<u>Initiate or Prepare</u>						
20	Data for electronic equipment	0.8601	1.7936	0.480	2.8750	2.5208
21	Adjusting entries	0.4286	1.7986	0.238	2.6250	2.8750
22	Closing entries	7.1458	1.8399	3.884	1.8750	2.8958
23	Entries to adjust inventory ledger cards	11.8125	1.4587	8.043*	1.2500	2.5625
24	Entries for purchase of materials	10.0119	1.5448	6.481*	1.7500	2.9583
25	Entries for issuance of materials	22.5268	1.3947	16.152*	1.0000	2.8125
27	Expense accounts	26.2976	1.1744	22.393*	1.2500	3.2083
28	Bank deposits	0.9643	1.0972	0.879	4.0000	3.6250
29	Withholding tax calculations	0.0268	1.4780	0.018	3.2500	3.3125
30	Entries for depreciation	11.8125	1.4688	8.043*	1.2500	2.5625
31	Entries for bad debts	11.0744	1.3237	8.366*	1.2500	2.5208
<u>Record (post)</u>						
32	Entries in ledgers from journals	24.1071	0.9861	24.447*	2.0000	3.8750
33	Adjusting entries	6.2976	1.4915	4.222*	2.1250	3.0833
34	Closing entries	23.5744	1.3700	17.208*	1.2500	3.1042
35	Purchase of materials	18.5744	1.1848	15.677*	1.5000	3.1458
36	Issuance of materials	29.1696	1.2002	24.303*	1.0000	3.0625

Table 13 continued.

Task Number	Task Description	Mean Squares			Means	
		Between	Within	F Ratio	Employees	Teachers
37	Opening a set of books	17.1905	1.8827	9.131*	1.0000	2.5833
38	Data in ledgers from special journal	22.0119	1.2948	17.001*	1.5000	3.2917
	<u>Maintain, Analyze or Do</u>					
39	Payroll tax records	1.0744	1.1385	0.944	3.0000	3.3958
40	Sales tax records	8.6786	1.2361	7.021*	2.2500	3.3750
41	Perpetual inventories	27.4286	1.1481	23.889*	1.0000	3.0000
42	Add (foot) and balance ledger accounts	17.6458	1.1269	15.658*	1.8750	3.4792
43	Add (foot), balance and total columns in special journal	9.6696	1.2095	7.995*	2.2500	3.4375
44	Rule and balance accounts	11.0744	1.5829	6.996*	2.0000	3.2708
45	Verify balances of control accounts with subsidiary ledger	16.7411	1.1609	14.421*	1.8750	3.4375
46	Discount notes	18.5744	1.6107	11.532*	1.0000	2.6458
47	Work with promissory notes	11.4405	1.3596	8.415*	1.2500	2.5417
48	Checking account	9.0030	0.9996	9.006*	2.7500	3.8958
49	Petty cash records	7.4405	1.1211	6.637*	2.6250	3.6667
	<u>Working Papers Used</u>					
50	Trial balance	19.5268	1.4317	13.639*	1.7500	3.4375
51	Post-closing trial balance	30.9643	1.3102	23.634*	1.2500	3.3750
52	Worksheet	19.0476	1.5147	12.576*	1.6250	3.2917

Table 13 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
<u>Prepare Computations For</u>						
53	Straight line depreciation	8.0476	1.3642	5.899*	1.5000	2.5833
54	Units of production depreciation	12.1905	1.2346	9.874*	1.0000	2.3333
55	Sum-of-the-years digits depreciation	12.5744	1.2033	10.450*	2.0000	2.3542
56	Declining balance depreciation	5.5030	1.2867	4.277*	1.5000	2.3958
57	Depletion	9.6696	1.0984	8.804*	1.0000	2.1875
58	Uncollectible accounts	3.2411	1.4572	2.224	1.8750	2.5625
59	Inventory amount on hand	9.6696	1.3553	7.135*	1.6250	2.8125
60	Inventory physical count	13.3601	1.3052	10.236*	1.5000	2.8958
61	Perpetual inventory	14.1696	1.0498	13.498*	1.1250	2.5625
62	FIFO inventory	5.2500	1.1250	4.667*	1.2500	2.1250
63	LIFO inventory	8.0476	0.9938	8.098*	1.0000	2.0833
64	Weighted average inventory	4.2976	1.1744	3.659	1.2500	2.0417
65	Specific inventory	3.6458	1.0829	3.367	1.2500	1.9792
66	Interest receivable	12.1905	1.0957	11.126*	1.2500	2.5833
67	Interest payable	11.8125	1.1146	10.598*	1.3750	2.6875
68	Markup	23.5744	0.9626	24.491*	1.0000	2.8542
69	Markdown	23.5744	0.9626	24.491*	1.0000	2.8542
70	Trade discounts	14.5833	1.2577	11.595*	1.5000	2.9583
71	Cash discount	17.6458	1.3052	13.520*	1.5000	3.1042
73	Figures payroll	0.2976	1.0656	0.279	3.6250	3.4167
74	Overtime	0.2976	0.9915	0.300	3.6250	3.4167
75	Shift premiums	3.2411	1.5312	2.117	2.3750	3.0625
76	Vacation and holiday pay	0.0119	1.2878	0.009	3.1250	3.1667
77	Bonuses	6.5744	1.3885	4.735*	2.0000	2.9792
78	Pension and annuity payments	6.8571	1.4907	4.600*	1.7500	2.7500

Table 13 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
	Payroll taxes:					
81	FICA	2.5030	1.0274	2.436	3.7500	3.1458
82	State unemployment	3.4405	1.1003	3.127	3.7500	3.0417
83	Federal unemployment	1.4405	1.2207	1.180	3.5000	3.0417
84	Federal withholding	0.5030	1.0459	0.481	3.5000	3.2292
85	State withholding	0.5030	1.0459	0.481	3.5000	3.2292
86	Workmen's compensation	1.3125	1.3484	0.973	3.2500	2.8125
	Statements:					
87	Balance sheet	22.0119	1.5285	14.401*	1.3750	3.1667
88	Income statement	21.5030	1.5158	14.186*	1.3750	3.1458
89	Capital statement	21.0000	1.2870	16.317*	1.2500	3.0000
90	Retained earnings statement	14.1696	1.4410	9.833*	1.2500	2.6875
91	Statement of changes in financial position	10.7143	1.5833	6.767*	1.2500	2.5000
92	Cash flow statement	9.0030	1.4626	6.156*	1.2500	2.3958
	Tax reports:					
93	Employee withholding	6.2976	1.7137	3.675	2.1250	3.0833
94	FICA	6.2976	1.6397	3.841	2.1250	3.0833
95	Federal unemployment compen- sation	11.8125	1.4873	7.942*	1.7500	3.0625
96	State unemployment compen- sation	11.0744	1.5644	7.079*	1.7500	3.0208
97	State sales and use tax	3.2411	1.5683	2.067	2.3750	3.0625
98	Schedule of accounts receivable	4.7619	1.0494	4.538*	2.5000	3.3333
99	Schedule of accounts payable	10.0119	1.0285	9.734*	2.1250	3.3333

Table 13 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
<u>Financial Statement Analysis</u>						
Ratios and percentages:						
100	Current ratio	1.8601	1.1848	1.570	1.2500	1.7708
101	Acid test ratio	3.8571	1.0926	3.530	1.0000	1.7500
102	Percentage of increase or decrease	2.6786	1.3472	1.988	1.2500	1.8750
103	Trend percentages	4.2976	1.1836	3.631	1.0000	1.7917
104	Common size statements	3.2411	1.0799	3.001	1.0000	1.6875
105	Turnover of accounts receivable	6.8571	1.2593	5.445*	1.0000	2.0000
106	Days sales uncollected	5.5030	1.1941	4.609*	1.0000	1.8958
107	Turnover of merchandise inventory	3.0476	1.2438	2.450	1.2500	1.9167
108	Capital contributions of owners and creditors	6.5744	1.3144	5.002*	1.0000	1.9792
109	Pledged plant assets to long-term liabilities	3.8571	1.0185	3.787	1.0000	1.7500
110	Times fixed interest charges were earned	4.5268	1.0613	4.265*	1.0000	1.8125
111	Rate of return on total assets employed	3.6458	1.0274	3.549	1.0000	1.7292
112	Rate of return on common stockholder's equity	4.0744	1.0459	3.896	1.0000	1.7708
113	Earnings per share of common stock	4.7619	1.0494	4.538*	1.0000	1.8333
114	Price earnings ratio	4.2976	1.0355	4.150*	1.0000	1.7917

Table 13 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
	<u>Comparative analysis:</u>					
115	Balance sheet	6.0268	1.7373	3.469	1.5000	2.4375
116	Income statement	6.0268	1.7373	3.469	1.5000	2.4375
117	Analysis of accounts receivable	10.0119	1.3225	7.570*	1.2500	2.4583
118	Dividends per share	8.0476	1.2160	6.618*	1.0000	2.0833
	<u>Operate</u>					
119	Ten-key adding machine	0.1071	0.7546	0.142	4.2500	4.1250
120	Calculator	4.7619	0.6073	7.842*	4.8750	4.0417
121	Dictating equipment	29.1696	1.2743	22.891*	1.0000	3.0625
122	Telephone equipment	10.3601	1.1825	8.761*	4.8750	3.6458
123	Cash register	29.1696	1.4039	20.777*	1.5000	3.5625
125	Bookkeeping machine	33.4405	0.9985	33.492*	1.0000	3.2083
	<u>Perform Data Processing Activities</u>					
126	Prepare input for automated processing	5.0030	1.8121	2.761	3.3750	2.5208
127	Utilize printed output	5.2500	1.7014	3.086	3.3750	2.5000
128	Operate computer	1.4405	1.1952	1.205	1.3750	1.8333
129	Write programs	1.3125	1.1447	1.147	1.2500	1.6875
130	Initiate and prepare flowcharts	0.5030	1.0829	0.464	1.5000	1.7708
131	Use pegboard system	10.7143	1.4259	7.514*	1.0000	2.2500
132	Operate a terminal to a computer system	0.5030	1.5274	0.329	1.7500	2.0208

Teachers-employees and importance by small business

The results of one-way analysis of variance tests for teachers-employees and importance by small business for each task are shown in Table 14. Of the 132 tasks listed, teachers rated 128 tasks higher than entry-level employees. In the categories of journals maintained; record(post); maintain, analyze or do; working papers used; and business mathematical calculations there was a significant difference between the opinions of teachers and entry-level employees on most tasks. In the categories of ledgers maintained; initiate or prepare; depreciation; payroll; statements; financial statement analysis; operate equipment and perform data processing activities, teachers and entry-level employees did not disagree on most tasks.

Table 14. One-way analysis of variance on opinions of teachers and entry-level employees of small businesses on importance--significance at .05 level indicated by *

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
<u>Journals Maintained</u>						
1	General	0.4286	1.2060	0.355	3.3750	3.6250
2	Cash receipts	3.4405	1.2114	2.840	3.2500	3.9583
3	Cash payments	5.5030	1.3422	4.100*	3.0000	3.8958
4	Check register	7.4405	1.6026	4.643*	2.6250	3.6667
5	Combined cash	18.1071	1.2569	14.406*	2.1250	3.7500
6	Sales	2.0119	1.1397	1.765	3.1250	3.6667
7	Sales returns and allowances	0.3601	1.3422	0.268	2.7500	2.9792
8	Purchases	10.3601	1.1385	9.100*	2.5000	3.7292
9	Purchase returns and allowances	8.0476	1.2369	6.506*	1.8750	2.9583
10	Vouchers register	1.8601	1.1547	1.611	2.3750	2.8958
11	Petty cash register	23.5744	1.0714	22.004*	1.6250	3.4792
<u>Ledgers Maintained</u>						
12	General	0.7619	0.9221	0.826	3.6250	3.9583
13	Accounts receivable	0.3601	0.6755	0.533	4.0000	4.2292
14	Notes receivable	5.0030	1.5552	3.217	2.2500	3.1042
15	Payroll	0.0119	1.2207	0.010	4.0000	4.0417
16	Accounts or vouchers payable	0.5030	1.0829	0.464	3.5000	3.7708
17	Plant (fixed assets)	0.0744	1.5644	0.048	2.7500	2.6458
18	Materials and stores ledgers	3.0476	1.4290	2.133	2.2500	2.9167

Table 14 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
<u>Initiate or Prepare</u>						
20	Data for electronic equipment	2.0119	1.5471	1.300	2.1250	2.6667
21	Adjusting entries	5.2500	1.6829	3.120	2.1250	3.0000
22	Closing entries	6.0268	1.8090	3.332	2.1250	3.0625
23	Entries to adjust inventory ledger cards	2.5030	1.4348	1.744	2.0000	2.6042
24	Entries for purchase of materials	4.7619	1.6258	2.929	2.3750	3.2083
25	Entries for issuance of materials	7.7411	1.3275	5.831*	1.8750	2.9375
27	Expense accounts	9.0030	1.3769	6.538*	1.3562	1.1437
28	Bank deposits	0.0000	0.8171	0.000	4.1250	4.1250
29	Withholding tax calculations	0.1071	1.3843	0.077	3.7500	3.6250
30	Entries for depreciation	1.7143	1.4907	1.150	2.2500	2.7500
31	Entries for bad debts	1.3125	1.3299	0.987	2.2500	2.6875
<u>Record (post)</u>						
32	Entries in ledgers from journals	16.7411	0.9757	17.158*	2.3750	3.9375
33	Adjusting entries	6.0268	1.3854	4.350*	2.2500	3.1875
34	Closing entries	2.8601	1.2843	2.227	2.6250	3.2708
35	Purchase of materials	15.0030	1.1454	13.098*	1.8750	3.3542
36	Issuance of materials	13.3601	1.3399	9.971*	1.8750	3.2708
37	Opening a set of books	12.9643	1.8750	6.914*	1.5000	2.8750
38	Data in ledgers from special journal	22.5268	1.1424	19.719*	1.6250	3.4375

Table 14 continued.

Task Number	Task Description	Mean Squares			Means	
		Between	Within	F Ratio	Employees	Teachers
<u>Maintain, Analyze or Do</u>						
39	Payroll taxes	0.1071	1.0347	0.104	3.8750	3.7500
40	Sales tax records	20.0119	1.3063	15.319*	1.8750	3.5833
41	Perpetual inventories	9.3333	1.2068	7.734*	1.7500	2.9167
42	Add (foot) and balance ledger accounts	6.8571	1.1574	5.925*	2.7500	3.7500
43	Add (foot), balance and total columns in special journals	8.0476	0.9591	8.391*	2.6250	3.7083
44	Rule and balance accounts	18.5744	1.6107	11.532*	1.7500	3.3958
45	Verify balances of control accounts with subsidiary ledger	6.2976	1.1744	5.362*	2.7500	3.7083
46	Discount notes	10.7143	1.6134	6.641*	1.3750	2.6250
47	Work with promissory notes	3.2411	1.7535	1.848	1.8750	2.5625
48	Checking account	6.2976	1.1744	5.362*	3.2500	4.2083
49	Petty cash records	19.0476	1.0216	18.645*	2.2500	3.9167
<u>Working Papers Used</u>						
50	Trial balance	18.5744	1.2103	15.347*	2.1250	3.7708
51	Post-closing trial balance	16.2976	1.2137	13.428*	2.1250	3.6667
52	Worksheet	4.0744	1.2195	3.341	2.8750	3.6458

Table 14 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
<u>Prepare Computations For</u>						
53	Straight line depreciation	3.6458	1.4973	2.435	2.1250	2.8542
54	Units of production depreciation	3.2411	1.3576	2.387	1.7500	2.4375
55	Sum-of-the-years digits depreciation	0.2976	1.5077	0.197	2.2500	2.4583
56	Declining balance depreciation	0.8601	1.3492	0.638	2.1250	2.4792
57	Depletion	3.4405	1.0725	3.208	1.5000	2.2083
58	Uncollectible accounts	2.3333	1.3480	1.731	2.1250	2.7083
59	Inventory amount on hand	16.2976	1.1836	13.769*	1.5000	3.0417
60	Inventory physical count	9.3333	1.1628	8.027*	1.8750	3.0417
61	Perpetual inventory	10.3601	1.1755	8.813*	1.5000	2.7292
62	FIFO inventory	3.2411	1.3576	2.387	1.5000	2.1875
63	LIFO inventory	2.5030	1.2681	1.974	1.5000	2.1042
64	Weighted average inventory	2.5030	1.3052	1.918	1.5000	2.1042
65	Specific inventory	2.1696	1.3854	1.566	1.5000	2.0625
66	Interest receivable	5.5030	1.3584	4.051*	1.8750	2.7708
67	Interest payable	6.8571	1.3356	5.134*	1.8750	2.8750
68	Markup	11.0744	1.3052	8.485*	1.7500	3.0208
69	Markdown	11.0744	1.3052	8.485*	1.7500	3.0208
70	Trade discount	6.5744	1.2103	5.432*	2.1250	3.1042
71	Cash discounts	10.3601	1.2311	8.415*	2.0000	3.2292
73	Figures payroll	0.0476	1.0517	0.045	3.8750	3.7917
74	Overtime	4.5268	1.2095	3.743	3.0000	3.8125
75	Shift premium	2.6786	1.7546	1.527	2.7500	3.3750
76	Vacation and holiday pay	0.8601	1.3862	0.620	3.1250	3.4792

Table 14 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
77	Bonuses	1.3125	1.5405	0.852	2.8750	3.3125
78	Pension and annuity payments	0.5030	1.7867	0.282	2.7500	3.0208
	Payroll taxes:					
81	FICA	2.6786	1.2569	2.131	3.1250	3.7500
82	State unemployment	1.4405	1.4174	1.016	3.1250	3.5833
83	Federal unemployment	1.7143	1.3727	1.249	3.1250	3.6250
84	Federal withholding	2.3333	1.2369	1.886	3.1250	3.7083
85	State withholding	2.3333	1.2369	1.886	3.1250	3.7083
86	Workmen's compensation	2.1696	1.6053	1.352	2.8750	3.4375
	Statements:					
87	Balance sheet	11.4405	1.6188	7.067*	2.2500	3.5417
88	Income statement	4.2976	1.6929	2.539	2.7500	3.5417
89	Capital statement	2.5030	1.6755	1.494	2.7500	3.3542
90	Retained earnings statement	1.1905	1.5147	0.786	2.6250	3.0417
91	Statement of changes in financial position	2.1696	1.6817	1.290	2.2500	2.8125
92	Cash flow statement	0.8601	1.4626	0.588	2.2500	2.6042
	Tax reports:					
93	Employee withholding	0.9643	1.5162	0.636	2.8750	3.2500
94	FICA	1.0744	1.4510	0.740	2.8750	3.2708
95	Federal unemployment compen- sation	0.8601	1.3954	0.616	2.8750	3.2292
96	State unemployment compen- sation	0.6696	1.4109	0.475	2.8750	3.1875
97	State sales and use tax	10.7143	1.3148	8.149*	2.0000	3.2500

Table 14 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
98	Schedule of accounts receivable	2.1696	1.3669	1.587	3.0000	3.5625
99	Schedule of accounts payable	1.8601	1.4070	1.322	3.0000	3.5208
<u>Financial Statement Analysis</u>						
Ratios and percentages:						
100	Current ratio	3.0476	0.9035	3.373	1.1250	1.7917
101	Acid test ratio	2.8601	0.8769	3.262	1.1250	1.7708
102	Percentage of increase or decrease	1.5744	1.1084	1.420	1.3750	1.8542
103	Trend percentages	1.1905	0.9591	1.241	1.3750	1.7917
104	Common size statements	2.5030	0.8214	3.047	1.1250	1.7292
105	Turnover of accounts receivable	5.0030	1.0343	4.837*	1.1250	1.9792
106	Days sales uncollected	4.2976	1.0100	4.255*	1.1250	1.9167
107	Turnover of merchandise inventory	5.2500	1.0903	4.815*	1.1250	2.0000
108	Capital contributions of owners and creditors	2.3333	1.2554	1.859	1.3750	1.9583
109	Pledged plant assets to long-term liabilities	2.6786	0.8125	3.297	1.1250	1.7500
110	Times fixed interest charges were earned	2.8601	0.8029	3.562	1.1250	1.7708
111	Rate of return on total assets employed	2.8601	0.8399	3.405	1.1250	1.7708
112	Rate of return on common stockholder's equity	3.2411	0.8183	3.961	1.1250	1.8125

Table 14 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
113	Earnings per share of common stock	1.7143	1.0208	1.679	1.3750	1.8750
114	Price earnings ratio	0.9643	0.7940	1.214	1.3750	1.7500
	Comparative analysis:					
115	Balance sheet	3.2411	2.1169	1.531	2.0000	2.6875
116	Income statement	3.2411	2.1169	1.531	2.0000	2.6875
117	Analysis of accounts receivable	4.0744	1.7867	2.280	2.0000	2.7708
118	Dividends per share	7.1458	1.1663	6.127*	1.2500	2.2708
	<u>Operate</u>					
119	Ten-key adding machine	0.0476	0.6698	0.071	4.2500	4.3333
120	Calculator	0.0030	0.7959	0.004	4.2500	4.2708
121	Dictating equipment	0.6696	1.7164	0.390	2.6250	2.9375
122	Telephone equipment	4.5268	1.2072	3.750	4.6250	3.8125
123	Cash register	5.5030	1.4695	3.745	2.8750	3.7708
125	Bookkeeping machine	9.3333	1.3827	6.750*	2.0000	3.1667
	<u>Perform Data Processing Activities</u>					
126	Prepare input for automated processing	0.2976	1.4799	0.201	2.5000	2.7083
127	Utilize printed output	2.6786	1.7384	1.541	2.1250	2.7500
128	Operate computer	1.7143	1.1852	1.446	1.5000	2.0000
129	Write programs	1.1905	1.2160	0.979	1.5000	1.9167

Table 14 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
130	Initiate and prepare flowcharts	4.2976	1.0471	4.104*	1.1250	1.9167
131	Use pegboard system	8.3601	1.1362	7.358*	1.1250	2.2292
132	Operate a terminal to a computer system	2.1696	1.3924	1.558	1.6250	2.1875

Teachers-employees and importance by medium business

The results of one-way analysis of variance tests for teachers-employees and importance by medium business for each task are shown in Table 15. Of the 132 tasks listed, teachers rated 124 tasks higher than entry-level employees. In the categories of record(post); working papers used; depreciation; business mathematical calculations and statements prepared there was a significant difference between the opinions of teachers and entry-level employees on most tasks. In the categories of journals maintained; ledgers maintained; initiate or prepare; maintain, analyze or do; inventory; payroll; financial statement analysis; operate equipment; and perform data processing activities, teachers and entry-level employees did not disagree on most tasks.

Table 15. One-way analysis of variance on opinions of teachers and entry-level employees of medium businesses on importance--significance at .05 level indicated by *

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
<u>Journals Maintained</u>						
1	General	5.2500	1.3843	3.793	2.7500	3.6250
2	Cash receipts	3.4405	1.3596	2.531	3.2500	3.9583
3	Cash payments	2.8601	1.4811	1.931	3.2500	3.8958
4	Check register	3.0476	1.6420	1.856	3.0000	3.6667
5	Combined cash	6.8571	1.4167	4.840*	2.7500	3.7500
6	Sales	5.7619	1.2253	4.702*	2.7500	3.6667
7	Sales returns and allowances	2.5030	1.3862	1.806	2.3750	2.9792
8	Purchases	15.0030	1.2404	12.096	2.2500	3.7292
9	Purchase returns and allowances	3.4405	1.3596	2.531	2.2500	2.9583
10	Vouchers register	1.8601	1.1917	1.561	2.3750	2.8958
11	Petty cash register	8.3601	1.3306	6.283*	2.3750	3.4792
<u>Ledgers Maintained</u>						
12	General	10.0119	1.0633	9.416*	2.7500	3.9583
13	Accounts receivable	23.5744	0.9325	25.281*	2.3750	4.2292
14	Notes receivable	5.0030	1.6292	3.071	2.2500	3.1042
15	Payroll	7.4405	1.2577	5.916*	3.0000	4.0417
16	Accounts or vouchers payable	4.0744	1.3422	3.036	3.0000	3.7708
17	Plant (fixed assets)	1.8601	1.5529	1.198	2.1250	2.6458
18	Materials and stores ledgers	3.0476	1.5031	2.028	2.2500	2.9167

Table 15 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
<u>Initiate or Prepare</u>						
20	Data for electronic equipment	1.4405	1.7693	0.814	3.1250	2.6667
21	Adjusting entries	0.1071	1.8681	0.057	2.8750	3.0000
22	Closing entries	7.7411	1.9039	4.066	2.0000	3.0625
23	Entries to adjust inventory ledger cards	2.5030	1.5829	1.581	2.0000	2.6042
24	Entries for purchase of materials	2.3333	1.6998	1.373	2.6250	3.2083
25	Entries for issuance of materials	2.1696	1.4942	1.452	2.3750	2.9375
27	Expense accounts	1.0744	1.4880	0.772	2.8750	3.2708
28	Bank deposits	5.2500	1.2361	4.247*	3.2500	4.1250
29	Withholding tax calculations	0.4286	1.5764	0.272	3.3750	3.6250
30	Entries for depreciation	3.8571	1.5741	2.450	2.0000	2.7500
31	Entries for bad debts	3.2411	1.4132	2.293	2.0000	2.6875
<u>Record (post)</u>						
32	Entries in ledgers from journals	9.6696	1.0799	8.955*	2.7500	3.9275
33	Adjusting entries	6.0268	1.4595	4.129*	2.2500	3.1875
34	Closing entries	7.1458	1.3515	5.287*	2.2500	3.2708
35	Purchase of materials	10.3601	1.2566	8.245*	2.1250	3.3542
36	Issuance of materials	9.0030	1.4510	6.205*	2.1250	3.2708
37	Opening a set of books	3.8571	2.0394	1.891	2.1250	2.8750
38	Data in ledgers from special journal	11.8125	1.2720	9.287*	2.1250	3.4375

Table 15 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
<u>Maintain, Analyze or Do</u>						
39	Payroll taxes	0.9643	1.2014	0.803	3.3750	3.7500
40	Sales tax records	6.2976	1.4360	4.386*	2.6250	3.5833
41	Perpetual inventories	3.0476	1.3920	2.189	2.2500	2.9167
42	Add (foot) and balance ledger accounts	12.9643	1.2014	10.791*	2.3750	3.7500
43	Add (foot), balance and total columns in special journals	14.5833	0.9892	14.743*	2.2500	3.7083
44	Rule and balance accounts	4.0744	1.9510	2.088	2.6250	3.3958
45	Verify balances of control accounts with subsidiary ledger	4.7619	1.2369	3.850	2.8750	3.7083
46	Discount notes	5.2500	1.7176	3.057	1.7500	2.6250
47	Work with promissory notes	4.5268	1.6539	2.737	1.7500	2.5625
48	Checking account	8.0476	1.1258	7.149*	3.1250	4.2083
49	Petty cash records	13.7619	1.2160	11.317*	2.5000	3.9167
<u>Working Papers Used</u>						
50	Trial balance	28.0030	1.2218	22.919*	1.7500	3.7708
51	Post-closing trial balance	25.1905	1.2253	20.558*	1.7500	3.6667
52	Worksheet	24.6458	1.2311	20.019*	1.7500	3.6458

Table 15 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
<u>Prepare Computations For</u>						
53	Straight line depreciation	5.0030	1.5922	3.142	2.0000	2.8542
54	Units of production depreciation	6.0268	1.3299	4.532*	1.5000	2.4375
55	Sum-of-the-years digits depreciation	6.2976	1.3318	4.729*	1.5000	2.4583
56	Declining balance depreciation	6.5744	1.2589	5.222*	1.5000	2.4792
57	Depletion	3.4405	1.0725	3.208	1.5000	2.2083
58	Uncollectible accounts	0.2976	1.4799	0.201	2.5000	2.7083
59	Inventory amount on hand	19.0476	1.1813	16.124*	1.3750	3.0417
60	Inventory physical count	16.2976	1.0725	15.195*	1.5000	3.0417
61	Perpetual inventory	12.5744	1.1732	10.718*	2.7292	1.3750
62	FIFO inventory	4.5268	1.3553	3.340	1.3750	2.1875
63	LIFO inventory	3.6458	1.2658	2.880	1.3750	2.1042
64	Weighted average inventory	3.6458	1.3029	2.798	1.3750	2.1042
65	Specific inventory	3.2411	1.3831	2.343	1.3750	2.0625
66	Interest receivable	9.0030	1.3769	6.538*	1.6250	2.7708
67	Interest payable	10.7143	1.3542	7.912*	1.6250	2.8750
68	Markup	13.3601	1.3862	9.638*	1.6250	3.0208
69	Markdown	13.3601	1.3862	9.638*	1.6250	3.0208
70	Trade discount	15.0030	1.2288	12.210*	1.6250	3.1042
71	Cash discounts	10.3601	1.4904	6.951*	2.0000	3.2292
73	Figures payroll	5.7619	1.2369	4.658*	2.8750	3.7917
74	Overtime	6.0268	1.2257	4.917*	2.8750	3.8125
75	Shift premium	5.2500	1.7269	3.040	2.5000	3.3750
76	Vacation and holiday pay	6.5744	1.5552	4.227*	2.5000	3.4792
77	Bonuses	4.5268	1.6354	2.768	2.5000	3.3125
78	Pension and annuity payments	7.1458	1.6478	4.337*	2.0000	3.0208

Table 15 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
	Payroll taxes:					
81	FICA	6.8571	1.3426	5.107*	2.7500	3.7500
82	State unemployment	4.7619	1.5031	3.168	2.7500	3.5833
83	Federal unemployment	5.2500	1.4583	3.600	2.7500	3.6250
84	Federal withholding	6.2976	1.3225	4.762*	2.7500	3.7083
85	State withholding	6.2976	1.3225	4.762*	2.7500	3.7083
86	Workmen's compensation	3.2411	1.6169	2.005	2.7500	3.4375
	Statements:					
87	Balance sheet	16.2976	1.5540	10.487*	2.0000	3.5417
88	Income statement	16.2976	1.5540	10.487*	2.0000	3.5417
89	Capital statement	23.5744	1.3515	17.444*	1.5000	3.3542
90	Retained earnings statement	16.2976	1.1836	13.769*	1.5000	3.0417
91	Statement of changes in financial position	7.7411	1.4595	5.304*	1.7500	2.8125
92	Cash flow statement	5.0030	1.2404	4.034*	1.7500	2.6042
	Tax reports:					
93	Employee withholding	3.8571	1.6852	2.289	2.5000	3.2500
94	FICA	4.0744	1.6200	2.515	2.5000	3.2708
95	Federal unemployment compen- sation	3.6458	1.5644	2.330	2.5000	3.2292
96	State unemployment compen- sation	3.2411	1.5799	3.051	2.5000	3.1875
97	State sales and use tax	3.8571	1.5741	2.450	2.5000	3.2500
98	Schedule of accounts receivable	11.8125	1.3576	8.701*	2.2500	3.5625
99	Schedule of accounts payable	11.0744	1.3978	7.923*	2.2500	3.5208

Table 15 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
<u>Financial Statement Analysis</u>						
Ratios and percentages:						
100	Current ratio	0.5833	0.9614	0.607	1.5000	1.7917
101	Acid test ratio	1.0744	0.9325	1.152	1.3750	1.7708
102	Percentage of increase or decrease	0.3601	1.1454	0.314	1.6250	1.8542
103	Trend percentages	1.1905	0.9591	1.241	1.3750	1.7917
104	Common size statements	0.8601	0.8769	0.981	1.3750	1.7292
105	Turnover of accounts receivable	0.8601	1.1269	0.763	1.6250	1.9792
106	Days sales uncollected	2.0119	1.0656	1.888	1.3750	1.9167
107	Turnover of merchandise inventory	1.7143	1.8520	1.446	1.5000	2.0000
108	Capital contributions of owners and creditors	1.4405	1.2948	1.113	1.5000	1.9583
109	Pledged plant assets to long-term liabilities	1.7143	0.8611	1.991	1.2500	1.7500
110	Times fixed interest charges were earned	1.8601	0.8515	2.185	1.2500	1.7708
111	Rate of return on total assets employed	1.8601	0.8885	2.094	1.2500	1.7708
112	Rate of return on common stockholder's equity	2.1696	0.8669	2.503	1.2500	1.8125
113	Earnings per share of common stock	2.6786	1.0139	2.642	1.2500	1.8750
114	Price earnings ratio	1.7143	0.7870	2.178	1.2500	1.7500

Table 15 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
<u>Comparative analysis:</u>						
115	Balance sheet	4.5268	2.1331	2.122	1.8750	2.6875
116	Income statement	4.5268	2.1331	2.122	1.8750	2.6875
117	Analysis of accounts receivable	4.0744	1.8978	2.147	2.0000	2.7708
118	Dividends per share	4.0744	1.2867	3.167	1.5000	2.2708
<u>Operate</u>						
119	Ten-key adding machine	0.2976	0.5100	0.584	4.1250	4.3333
120	Calculator	0.5030	0.7311	0.688	4.0000	4.2708
121	Dictating equipment	1.3125	1.6794	0.782	3.3750	2.9375
122	Telephone equipment	0.6696	1.3738	0.487	4.1250	3.8125
123	Cash register	18.5744	1.4325	12.967*	2.1250	3.7708
125	Bookkeeping machine	7.4405	1.3619	5.463*	2.1250	3.1667
<u>Perform Data Processing Activities</u>						
126	Prepare input for automated processing	7.4405	1.5448	4.817*	3.7500	2.7083
127	Utilize printed output	1.7143	1.8981	0.903	3.2500	2.7500
128	Operate computer	3.8571	1.1019	3.501	1.2500	2.0000
129	Write programs	3.0476	1.1327	2.691	1.2500	1.9167
130	Initiate and prepare flowcharts	1.1905	1.1420	1.042	1.5000	1.9167
131	Use pegboard system	6.5744	1.1848	5.549*	1.2500	2.2292
132	Operate a terminal to a computer system	0.2411	1.5775	0.153	2.3750	2.1875

Teachers-employees and importance by large business

The results of one-way analysis of variance tests for teachers-employees and importance by large business for each task are shown in Table 16. Of the 132 tasks listed, teachers rated 119 tasks higher than entry-level employees. In the categories of journals maintained; ledgers maintained; initiate or prepare; record(post); maintain, analyze or do; working papers used; depreciation; business mathematical calculations; statements; financial statement analysis and operate equipment, there was significant difference between the opinions of teachers and entry-level employees on most tasks. In the categories of inventory; payroll and perform data processing activities teachers and entry-level employees did not disagree on most tasks.

Table 16. One-way analysis of variance on opinions of teachers and entry-level employees of large businesses on importance--significance at .05 level indicated by *

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
<u>Journals Maintained</u>						
1	General	24.1071	1.1250	21.429*	1.7500	3.6250
2	Cash receipts	8.0476	1.3850	5.810*	2.8750	3.9583
3	Cash payments	21.5030	1.3954	15.409*	2.1250	3.8958
4	Check register	18.5833	1.4545	19.652*	1.6250	3.6667
5	Combined cash	30.9643	1.1644	26.594*	1.6250	3.7500
6	Sales	7.4405	1.1582	6.424*	2.6250	3.6667
7	Sales returns and allowances	12.5744	1.1269	11.158*	1.6250	2.9792
8	Purchases	23.5744	1.1177	21.092*	1.8750	3.7292
9	Purchase returns and allowances	20.0119	1.1003	18.188*	1.2500	2.9583
10	Vouchers register	13.3601	0.9348	14.292*	1.5000	2.8958
11	Petty cash register	26.8601	1.0737	25.017*	1.5000	3.4792
<u>Ledgers Maintained</u>						
12	General	20.0119	0.8410	23.794*	2.2500	3.9583
13	Accounts receivable	6.5744	0.7404	8.880*	3.2500	4.2292
14	Notes receivable	10.3601	1.4325	7.232*	1.8750	3.1042
15	Payroll	0.5933	1.2114	0.482	3.7500	4.0417
16	Accounts or vouchers payable	9.0030	1.1547	7.797*	2.6250	3.7708
17	Plant (fixed assets)	9.0030	1.3515	6.662*	1.5000	2.6458
18	Materials and stores ledgers	13.7619	1.2901	10.667*	1.5000	2.9167

Table 16 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
<u>Initiate or Prepare</u>						
20	Data for electronic equipment	0.0119	1.6767	0.007	2.6250	2.6667
21	Adjusting entries	0.1071	1.7940	0.060	2.8750	3.0000
22	Closing entries	6.0268	1.9201	3.139	2.1250	3.0625
23	Entries to adjust inventory ledger cards	8.3601	1.3607	6.144*	1.5000	2.6042
24	Entries for purchase of materials	12.1905	1.4961	8.148*	1.8750	3.2083
25	Entries for issuance of materials	19.5268	1.1910	16.396*	1.2500	2.9375
27	Expense accounts	21.5030	1.2496	17.208*	1.5000	3.2708
28	Bank deposits	0.0000	0.8542	0.000	4.1250	4.1250
29	Withholding tax calculations	0.0000	1.5394	0.000	3.6250	3.6250
30	Entries for depreciation	10.7143	1.3519	7.926*	1.5000	2.7500
31	Entries for bad debts	9.6696	1.1910	8.119*	1.5000	2.6875
<u>Record (post)</u>						
32	Entries in ledgers from journals	29.1696	0.8090	26.055*	1.8750	3.9375
33	Adjusting entries	9.6696	1.3206	7.322*	2.0000	3.1875
34	Closing entries	21.5030	1.1385	18.887*	1.5000	3.2708
35	Purchase of materials	23.5744	1.0552	22.342*	1.5000	3.3542
36	Issuance of materials	28.0030	1.2033	23.271*	1.2500	3.2708
37	Opening a set of books	18.1071	1.7917	10.106*	1.2500	2.8750
38	Data in ledgers from special journal	19.5268	1.0984	17.778*	1.7500	3.4375

Table 1G continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
<u>Maintain, Analyze or Do</u>						
39	Payroll taxes	0.4286	1.3148	0.326	3.5000	3.7500
40	Sales tax records	6.2976	1.3989	4.502*	2.6250	3.5833
41	Perpetual inventories	19.0476	1.1327	16.816*	1.2500	2.9167
42	Add (foot) and balance ledger accounts	27.4286	0.9722	28.212*	1.7500	3.7500
43	Add (foot), balance and total columns in special journals	17.1905	0.8665	19.839*	2.1250	3.7093
44	Rule and balance accounts	11.0744	1.6362	6.768*	2.1250	3.3958
45	Verify balances of control accounts with subsidiary ledger	26.2976	0.8410	31.268*	1.7500	3.7083
46	Discount notes	12.9643	1.5324	8.450*	1.2500	2.6250
47	Work with promissory notes	7.7411	1.5150	5.109*	1.5000	2.5625
48	Checking account	14.5833	0.9151	15.936*	2.7500	4.2083
49	Petty cash records	13.7619	1.0309	13.350*	2.5000	3.9167
<u>Working Papers Used</u>						
50	Trial balance	28.0030	1.1107	25.211*	1.7500	3.7708
51	Post-closing trial balance	32.1905	1.0864	29.630*	1.5000	3.6667
52	Worksheet	24.6458	1.1200	22.006*	1.7500	3.6458
<u>Prepare Computations For</u>						
53	Straight line depreciation	10.3601	1.3677	7.575*	1.6250	2.8542

Table 16 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
54	Units of production depreciation	7.7411	1.2535	6.176*	1.3750	2.4375
55	Sum-of-the-years digits depreciation	8.0476	1.2554	6.410*	1.3750	2.4583
56	Declining balance depreciation	5.0030	1.2195	4.102*	1.6250	2.4792
57	Depletion	6.2976	0.9892	6.366*	1.2500	2.2083
58	Uncollectible accounts	4.7619	1.4591	3.264	1.8750	2.7083
59	Inventory amount on hand	7.4405	1.2207	6.095*	2.0000	3.0417
60	Inventory physical count	5.7619	1.2739	4.523*	2.1250	3.0417
61	Perpetual inventory	10.3601	1.1755	8.813*	1.5000	2.7292
62	FIFO inventory	2.1696	1.3924	1.558	1.6250	2.1875
63	LIFO inventory	3.6458	1.2658	2.880	1.3750	2.1042
64	Weighted average inventory	1.5744	1.3399	1.175	1.6250	2.1042
65	Specific inventory	1.3125	1.4201	0.924	1.6250	2.0625
66	Interest receivable	9.0030	1.3029	6.910*	1.6250	2.7708
67	Interest payable	8.6786	1.2731	6.817*	1.7500	2.8750
68	Markup	18.5744	1.2751	14.567*	1.3750	3.0208
69	Markdown	18.5744	1.2751	14.567*	1.3750	3.0208
70	Trade discount	20.5030	1.1177	18.344*	1.3750	3.1042
71	Cash discounts	23.5744	1.1917	19.781*	1.3750	3.2292
73	Figures payroll	0.0476	1.1258	0.042	3.8750	3.7917
74	Overtime	0.0268	1.1262	0.024	3.7500	3.8125
75	Shift premium	1.7143	1.7060	1.005	2.8750	3.3750
76	Vacation and holiday pay	0.3601	1.5089	0.239	3.2500	3.4792
77	Bonuses	3.2411	1.5220	2.129	2.6250	3.3125
78	Pension and annuity payments	4.0744	1.7867	2.280	2.2500	3.0208

Table 16 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
	Payroll taxes:					
81	FICA	0.9643	1.1458	0.842	4.1250	3.7500
82	State unemployment	2.0119	1.3063	1.540	4.1250	3.5833
83	Federal unemployment	1.7143	1.2616	1.359	4.1250	3.6250
84	Federal withholding	0.1905	1.2739	0.150	3.8750	3.7083
85	State withholding	0.1905	1.2739	0.150	3.8750	3.7083
86	Workmen's compensation	1.3125	1.5683	0.837	3.8750	3.4375
	Statements:					
87	Balance sheet	22.0119	1.4336	15.354*	1.7500	3.5417
88	Income statement	22.0119	1.4336	15.354*	1.7500	3.5417
89	Capital statement	23.5744	1.3885	16.978*	1.5000	3.3542
90	Retained earnings statement	16.2976	1.2207	13.351*	1.5000	3.0417
91	Statement of changes in financial position	11.8125	1.4687	8.043*	1.5000	2.8125
92	Cash flow statement	8.3601	1.2496	6.690*	1.5000	2.6042
	Tax reports:					
93	Employee withholding	5.2500	1.7199	3.052	2.3750	3.2500
94	FICA	5.5030	1.6547	3.326	2.3750	3.2708
95	Federal unemployment compen- sation	10.3601	1.5644	6.622*	2.0000	3.2292
96	State unemployment compen- sation	9.6696	1.5799	6.121*	2.0000	3.1875
97	State sales and use tax	2.6786	1.5718	1.704	2.6250	3.2500
98	Schedule of accounts receivable	6.0268	1.3275	4.540*	2.6250	3.5625
99	Schedule of accounts payable	11.0744	1.3607	8.139*	2.2500	3.5208

Table 16 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
<u>Financial Statement Analysis</u>						
Ratios and percentages:						
100	Current ratio	2.0119	0.9522	2.113	1.2500	1.7917
101	Acid test ratio	4.0744	0.8607	4.734*	1.0000	1.7708
102	Percentage of increase or decrease	2.5030	1.1015	2.272	1.2500	1.8542
103	Trend percentages	4.2976	0.8873	4.843*	1.0000	1.7917
104	Common size statements	3.6458	0.8052	4.528*	1.0000	1.7292
105	Turnover of accounts receivable	6.5744	1.0181	6.457*	1.0000	1.9792
106	Days sales uncollected	5.7619	0.9938	5.798*	1.0000	1.9167
107	Turnover of merchandise inventory	3.8571	1.1389	3.387	1.2500	2.0000
108	Capital contributions of owners and creditors	6.2976	1.1836	5.321*	1.0000	1.9583
109	Pledged plant assets to long-term liabilities	3.8571	0.7963	4.844*	1.0000	1.7500
110	Times fixed interest charges were earned	4.0744	0.7867	5.179*	1.0000	1.7708
111	Rate of return on total assets employed	3.8571	1.1389	3.387	1.2500	2.0000
112	Rate of return on common stockholder's equity	4.5268	0.8021	5.644*	1.0000	1.8125
113	Earnings per share of common stock	5.2500	0.9491	5.532*	1.0000	1.8750
114	Price earnings ratio	3.8571	0.7222	5.341*	1.0000	1.7500

Table 16 continued.

Task Number	Task Description	Mean Squares		F Ratio	Means	
		Between	Within		Employees	Teachers
<u>Comparative analysis:</u>						
115	Balance sheet	6.0268	2.0336	2.964	1.7500	2.6875
116	Income statement	6.0268	2.0336	2.964	1.7500	2.6875
117	Analysis of accounts receivable	11.0744	1.6755	6.609*	1.5000	2.7708
118	Dividends per share	7.1458	1.2033	5.938*	1.2500	2.2708
<u>Operate</u>						
119	Ten-key adding machine	0.1905	0.6420	0.297	4.5000	4.3333
120	Calculator	3.6458	0.5089	7.165*	5.0000	4.2708
121	Dictating equipment	19.5268	1.3391	14.582*	1.2500	2.9375
122	Telephone equipment	7.7411	1.1516	6.722*	4.8750	3.8125
123	Cash register	28.0030	1.2959	21.609*	1.7500	3.7708
125	Bookkeeping machine	25.1905	1.0031	25.113*	1.2500	3.1667
<u>Perform Data Processing Activities</u>						
126	Prepare input for automated processing	4.2976	1.5170	2.833	3.5000	2.7083
127	Utilize printed output	5.2500	1.8310	2.867	3.6250	2.7500
128	Operate computer	1.7143	1.2963	1.322	1.5000	2.0000
129	Write programs	3.0476	1.1327	2.691	1.2500	1.9167
130	Initiate and prepare flowcharts	1.1905	1.1420	1.042	1.5000	1.9167
131	Use pegboard system	10.3601	1.1200	9.250*	1.0000	2.2292
132	Operate a terminal to a computer system	1.3125	1.5336	0.856	1.7500	2.1875

Descriptive Question Analysis

Tasks ranked from the highest mean to the lowest mean for businesses combined are shown in Table 17 for frequency, Table 18 for performance and Table 19 for importance. The means of teachers' responses are matched with the appropriate tasks.

Rankings of task means of businesses for frequency

Employee responses ranked from the highest task mean to the lowest task mean for frequency are shown in Table 17. Teachers' responses to the same tasks are shown in a second set of columns in the table. Operating telephone equipment, calculators and ten-key adding machines were the highest rated task means for employees of all businesses for frequency. Tasks relating to checking accounts were rated among the highest 10 tasks. Tasks relating to payroll preparation were also rated high by employees. Working with cash receipt journals and accounts receivable ledgers were rated in the highest 10 tasks.

Of the 10 lowest rated tasks, 8 were involved with financial statement analysis. Calculating depletion and LIFO inventories were also in the lowest rated tasks for frequency.

Table 17. Ranking (based on means of employees) for employees and teachers on Frequency.

Task Number	Task Description	Employees			Teachers		
		Mean	SD	Rank	Mean	SD	Rank
122	Operate telephone equipment	4.833	0.816	1	4.354	1.345	5
120	Operate calculator	4.667	1.129	2	4.813	0.641	2
119	Operate ten-key adding machine	4.375	1.439	3	4.896	0.425	1
28	Bank deposits	4.167	1.341	4	4.354	0.911	4
72	Handle time cards	3.500	1.445	5	3.729	0.939	20
15	Payroll ledgers	3.458	1.474	6	3.417	1.028	29
2	Cash receipts journal	3.417	1.640	7	4.292	1.184	7
13	Accounts receivable ledger	3.417	1.886	8	4.271	0.792	8
73	Figures payroll	3.292	1.517	9	3.458	0.824	26
48	Checking account	3.125	1.702	10	4.438	1.009	3
124	Operate check protector	3.125	1.895	11	3.604	1.647	22
126	Prepare input for automated processing	3.083	1.840	12	3.063	1.656	51
29	Withholding tax calculation	3.042	1.429	13	3.125	1.024	48
39	Payroll tax records	3.000	1.383	14	3.125	0.866	47
81	FICA taxes	2.917	1.381	15	3.271	0.917	34
74	Overtime calculations	2.917	1.666	16	3.521	0.875	23
127	Utilize printed output	2.917	1.840	17	3.000	1.663	58
85	State withholding taxes	2.833	1.404	18	3.229	0.951	42
84	Federal withholding taxes	2.833	1.435	19	3.271	0.939	35
3	Cash payments journal	2.792	1.769	20	4.292	1.148	6

Table 17 continued.

Task Number	Task Description	Employees			Teachers		
		Mean	SD	Rank	Mean	SD	Rank
6	Sales journal	2.708	1.829	21	4.083	1.088	12
16	Accounts or vouchers payable ledgers	2.667	1.633	22	3.938	0.976	15
4	Check register	2.625	1.765	23	3.813	1.439	18
82	State unemployment taxes	2.583	1.283	24	3.000	1.011	54
12	General ledger	2.583	1.530	25	3.958	0.824	14
76	Vacation and holiday pay	2.583	1.613	26	3.021	1.082	52
80	Medical and hospitalization plan premiums	2.542	1.560	27	2.875	1.064	63
1	General journal	2.542	1.587	28	3.854	1.072	17
83	Federal unemployment	2.458	1.351	29	3.000	1.011	55
49	Petty cash records	2.458	1.744	30	4.188	1.045	10
20	Data for electronic equipment	2.458	1.841	31	3.125	1.619	50
98	Schedule of accounts receivable	2.417	1.472	32	2.917	0.613	59
19	Journal entries for an original set of books	2.417	1.530	33	2.542	1.543	80
24	Entries for purchase of materials	2.375	1.740	34	3.313	1.240	32
99	Schedule of accounts payable	2.333	1.435	35	2.917	0.613	60
26	Entries for correcting	2.333	1.494	36	2.854	1.130	65
32	Post entries in ledgers from journals	2.333	1.551	37	4.167	0.834	11
79	Group life insurance premiums	2.292	1.398	38	2.813	1.104	69
21	Adjusting entries	2.250	1.726	39	2.500	0.945	83

Table 17 continued.

Task Number	Task Description	Employees			Teachers		
		Mean	SD	Rank	Mean	SD	Rank
86	Workmen's compensation	2.208	1.215	40	2.833	1.078	67
43	Add (foot), balance and total columns in special journals	2.208	1.560	41	3.146	0.772	46
45	Verify balances of control account with subsidiary ledger	2.167	1.404	42	3.146	0.652	45
42	Add (foot) and balance ledger accounts	2.167	1.579	43	3.271	1.047	36
75	Shift premiums	2.167	1.659	44	3.250	1.042	40
33	Post adjusting entries	2.042	1.301	45	2.604	0.792	74
40	Sales tax records	2.042	1.429	46	3.000	1.031	56
77	Bonuses	2.042	1.459	47	2.854	1.052	64
14	Notes receivable ledger	2.000	1.319	48	3.000	1.203	57
78	Pension and annuity payments	1.958	1.459	49	2.771	1.115	70
121	Operate dictating equipment	1.958	1.706	50	3.396	1.498	31
5	Combined cash journal	1.917	1.442	51	4.063	1.327	13
8	Purchases journal	1.917	1.442	52	3.938	1.156	16
7	Sales returns and allowances journal	1.875	1.393	53	3.271	1.380	39
93	Employee withholding report	1.833	0.868	54	2.417	0.739	89
94	FICA report	1.833	0.868	55	2.396	0.676	90
123	Operate cash register	1.833	1.659	56	4.271	1.440	9
27	Expense accounts	1.792	1.285	57	3.458	1.148	27
34	Post closing entries	1.792	1.318	58	2.604	0.818	75

Table 17 continued.

Task Number	Task Description	Employees			Teachers		
		Mean	SD	Rank	Mean	SD	Rank
95	Federal unemployment compensation report	1.750	0.794	59	2.271	0.676	95
96	State unemployment compensation report	1.750	0.794	60	2.271	0.676	96
97	State sales and use tax report	1.750	0.794	61	2.271	0.736	97
44	Rule and balance accounts	1.750	1.260	62	2.896	0.994	62
71	Cash discount	1.750	1.359	63	3.500	1.384	24
17	Plant (fixed assets) ledger	1.708	1.122	64	2.313	0.949	92
58	Uncollectable accounts	1.708	1.301	65	2.479	0.967	85
132	Operate a terminal to a computer system	1.708	1.429	66	2.438	1.583	88
52	Worksheet	1.667	1.090	67	2.833	0.834	66
35	Post purchase of materials	1.625	1.279	68	3.438	1.128	28
70	Trade discounts	1.625	1.279	69	3.417	1.442	30
50	Trial balance	1.583	1.060	70	3.000	0.799	53
18	Materials and stores ledger	1.583	1.213	71	2.917	1.252	61
10	Petty cash register	1.583	1.381	72	3.479	1.337	25
38	Record data in ledgers from special journal	1.542	1.103	73	3.271	1.180	37
22	Closing entries	1.500	0.978	74	2.542	0.988	78
88	Income statement preparation	1.458	0.721	75	2.646	0.812	72
66	Interest receivable	1.458	0.833	76	2.458	0.898	87
67	Interest payable	1.417	0.776	77	2.521	0.945	81

Table 17 continued.

Task Number	Task Description	Employees			Teachers		
		Mean	SD	Rank	Mean	SD	Rank
115	Balance sheet comparative analysis	1.417	0.776	78	2.063	0.998	104
116	Income statement comparative analysis	1.417	0.776	79	2.063	0.998	105
31	Entries for bad debts	1.417	0.974	80	2.292	0.824	94
11	Petty cash register	1.417	1.176	81	3.750	1.229	19
30	Entries for depreciation	1.375	0.711	82	2.167	0.808	101
53	Straight line depreciation	1.375	0.711	83	2.104	0.881	103
87	Balance sheet preparation	1.375	0.711	84	2.646	0.838	73
117	Analysis of accounts receivable	1.375	0.711	85	2.167	0.953	102
9	Purchases returns and allowances journal	1.375	1.056	86	3.250	1.361	41
51	Post closing trial balance	1.333	0.702	87	2.813	0.762	68
128	Operate computer	1.333	1.007	88	2.208	1.570	99
125	Operate bookkeeping machine	1.333	1.129	89	3.729	1.440	21
56	Declining balance depreciation	1.292	0.624	90	1.896	0.831	108
60	Inventory physical count	1.292	0.624	91	2.333	0.834	91
47	Discount notes	1.292	0.690	92	2.479	1.130	86
59	Inventory amount on hand	1.292	0.690	93	2.542	1.010	79
89	Capital statement preparation	1.292	0.751	94	2.583	0.710	94
92	Cash flow statement preparation	1.292	0.751	95	2.208	0.898	98
129	Write programs	1.292	0.999	96	1.771	1.207	118
102	Percentage of increase or decrease	1.250	0.608	97	1.708	0.922	120

Table 17 continued.

Task Number	Task Description	Employees			Teachers		
		Mean	SD	Rank	Mean	SD	Rank
68	Markup	1.250	0.737	98	3.167	1.310	44
90	Retained earnings statement preparation	1.208	0.588	99	2.479	0.714	84
25	Entries for issuance of materials	1.208	0.721	100	3.188	1.468	43
41	Perpetual inventories	1.208	0.721	101	3.271	1.317	41
36	Post issuance of materials	1.167	0.482	102	3.313	1.401	33
91	Statement of changes in financial position preparation	1.167	0.482	103	2.188	0.842	100
23	Entries to adjust inventory ledger cards	1.167	0.565	104	2.292	0.849	93
107	Turnover of merchandise inventory	1.167	0.565	105	1.813	0.816	115
69	Markdown	1.167	0.637	106	3.125	1.315	49
131	Use pegboard systems	1.167	0.816	107	2.521	1.624	82
37	Opening a set of books	1.125	0.338	108	1.708	1.051	121
130	Initiate and prepare flowcharts	1.125	0.338	109	1.708	1.051	122
61	Perpetual inventory	1.125	0.448	110	2.688	1.223	71
100	Current ratio	1.125	0.448	111	1.625	0.815	125
103	Trend percentages	1.125	0.448	126	1.583	0.767	126
55	Sum-of-the-years digits depreciation	1.083	0.282	113	1.792	0.798	116
65	Specific inventory	1.083	0.282	114	1.813	0.790	114
113	Earnings per share of common stock	1.083	0.282	115	2.667	0.724	123

Table 17 continued.

Task Number	Task Description	Employees			Teachers		
		Mean	SD	Rank	Mean	SD	Rank
114	Price earnings ratio	1.083	0.282	116	1.646	0.668	124
46	Discount notes	1.083	0.408	117	2.563	1.270	77
62	FIFO inventory	1.083	0.408	118	1.875	0.815	109
64	Weighted average inventory	1.083	0.408	119	1.813	0.762	113
104	Common size statements	1.083	0.408	120	1.542	0.743	128
118	Dividends per share	1.083	0.408	121	1.771	0.805	117
54	Units of production depreciation	1.042	0.204	122	1.833	0.834	112
57	Depletion	1.042	0.204	123	1.833	0.781	111
105	Turnover of accounts receivable	1.042	0.204	124	1.917	1.007	107
106	Day's sales uncollected	1.042	0.204	125	2.000	1.353	106
108	Capital contributions of owners and creditors	1.042	0.204	126	1.729	0.818	119
112	Rate of return on common stockholders' equity	1.042	0.204	127	1.563	0.649	127
63	LIFO inventory	1.000	0.000	128	1.833	0.753	110
101	Acid test ratio	1.000	0.000	129	1.521	0.714	130
109	Pledged plant assets to long-term liabilities	1.000	0.000	130	1.521	0.652	131
110	Times fixed interest charges were earned	1.000	0.000	131	1.542	0.651	129
111	Rate of return on total assets employed	1.000	0.000	132	1.479	0.618	132

Ranking of task means of businesses for performance

Employee responses ranked from the highest task mean to the lowest task mean for performance are shown in Table 18. Teachers' responses to the same tasks are shown in a second set of columns in the table. Operating telephone equipment, calculators and ten-key adding machines were the highest rated task means for employees of all businesses for performance. Figuring bank deposits was the next highest rated task. Five of the next six tasks involved payroll preparation. Maintaining an accounts receivable ledger was the other task mean in the highest 10 tasks.

Of the 10 lowest rated tasks, 8 were involved with financial statement analysis. Using pegboard systems and calculating LIFO inventories were also in the lowest rated tasks for performance.

Table 18. Ranking (based on means of employees) for employees and teachers on Performance.

Task Number	Task Description	Employees			Teachers		
		Mean	SD	Rank	Mean	SD	Rank
122	Operate telephone equipment	4.417	0.881	1	3.646	1.158	7
120	Operate calculator	4.208	1.141	2	4.042	0.824	2
119	Operate ten-key adding machine	4.042	1.301	3	4.125	0.761	1
28	Bank deposits	3.792	1.250	4	3.625	1.084	8
72	Handle time cards	3.500	1.474	5	3.479	0.922	13
15	Payroll ledgers	3.458	1.474	6	3.604	1.162	10
73	Figures payroll	3.417	1.558	7	3.417	0.986	21
13	Accounts receivable ledger	3.333	1.523	8	3.854	0.989	5
39	Payroll tax records	3.292	1.197	9	3.396	1.026	23
81	FICA taxes	3.292	1.488	10	3.146	1.052	43
82	State unemployment taxes	3.292	1.488	11	3.042	1.091	57
29	Withholding tax calculation	3.250	1.482	12	3.313	1.170	30
83	Federal unemployment	3.208	1.560	13	3.042	1.091	58
84	Federal withholding taxes	3.208	1.560	14	3.229	0.994	35
85	State withholding taxes	3.208	1.560	15	3.229	0.994	36
2	Cash receipts journal	3.208	1.693	16	3.563	1.029	11
126	Prepare input for automated processing	3.125	1.650	17	2.521	1.288	97
127	Utilize printed output	3.042	1.681	18	2.500	1.255	98
74	Overtime calculations	3.000	1.694	19	3.417	0.942	20
48	Checking account	2.958	1.546	20	3.896	0.973	3

Table 18 continued.

Task Number	Task Description	Employees			Teachers		
		Mean	SD	Rank	Mean	SD	Rank
86	Workmen's compensation	2.958	1.628	21	2.813	1.104	77
124	Operate check protector	2.958	1.756	22	3.083	1.269	51
16	Accounts or vouchers payable ledgers				3.438	1.070	18
12	General ledger	2.917	1.640	23	3.604	1.026	9
76	Vacation and holiday pay	2.833	1.685	24	3.167	1.078	41
3	Cash payments journal	2.833	1.685	25	3.167	1.078	41
		2.792	1.641	26	3.479	1.052	15
1	General journal	2.750	1.539	27	3.250	1.000	34
98	Schedule of accounts receivable	2.708	1.574	18	3.333	0.975	27
93	Employee withholding report	2.625	1.555	29	3.083	1.269	50
94	FICA report	2.625	1.555	30	3.083	1.235	49
4	Check register	2.583	1.586	31	3.208	1.184	40
80	Medical and hospitalization plan premiums				3.000	1.072	61
6	Sales journal	2.583	1.586	32	3.354	1.021	26
26	Entries for correcting	2.583	1.613	33	2.833	1.277	76
20	Data for electronic equipment	2.583	1.640	34	2.521	1.288	96
19	Journal entries for an original set of books	2.583	1.692	35	2.521	1.288	96
		2.500	1.445	36	2.854	1.353	75
99	Schedule of accounts payable	2.500	1.504	37	3.333	0.975	28
95	Federal unemployment compensation report	2.500	1.560	38	3.063	1.192	54
96	State unemployment compensation report	2.500	1.560	39	3.021	1.229	60

Table 18 continued.

Task Number	Task Description	Employees			Teachers		
		Means	SD	Rank	Mean	SD	Rank
49	Petty cash records	2.500	1.642	40	3.667	0.975	6
79	Group life insurance premiums	2.458	1.532	41	2.896	1.115	68
97	State sales and use tax report	2.458	1.560	42	3.063	1.210	55
43	Add (foot), balance and total columns in special journals	2.417	1.666	43	3.438	1.050	16
45	Verify balances of control account with subsidiary ledger	2.375	1.637	44	3.438	1.050	17
21	Adjusting entries	2.333	1.659	45	2.875	1.265	71
42	Add (foot) and balance ledger accounts	2.333	1.711	46	3.479	1.031	14
77	Bonuses	2.292	1.628	47	2.979	1.139	64
32	Entries in ledgers from journals	2.250	1.359	48	3.875	0.981	4
40	Sales tax records	2.208	1.414	49	3.375	1.064	24
33	Post adjusting entries	2.167	1.373	50	3.083	1.217	48
24	Entries for purchase of materials	2.167	1.494	51	2.958	1.271	67
75	Shift premium	2.167	1.633	52	3.063	1.174	53
14	Notes receivable ledger	2.125	1.424	53	3.021	1.194	59
52	Worksheet	2.125	1.541	54	3.292	1.237	32
121	Operate dictating equipment	2.125	1.650	55	3.063	1.210	56
78	Pension and annuity payments	2.083	1.501	56	2.750	1.194	82
8	Purchases journal	2.042	1.459	57	3.313	1.014	29
17	Plant (fixed assets) ledger	2.042	1.459	58	2.646	1.158	85
58	Uncollectable accounts	2.042	1.574	59	2.563	1.128	91

Table 18 continued.

Task Number	Task Description	Employees			Teachers		
		Mean	SD	Rank	Mean	SD	Rank
27	Expense accounts	2.000	1.383	60	3.208	1.129	39
34	Record closing entries	2.000	1.383	61	3.104	1.225	47
7	Sales returns and allowances journal	2.000	1.532	62	2.792	1.129	80
50	Trial balance	1.958	1.488	63	3.438	1.219	19
44	Rule and balance accounts	1.917	1.472	64	3.271	1.267	33
71	Cash discount	1.917	1.530	65	3.104	1.096	46
5	Combined cash journal	1.875	1.329	66	3.417	1.088	22
18	Materials and stores ledger	1.875	1.329	67	2.854	1.111	74
88	Income statement preparation	1.875	1.361	68	3.146	1.288	45
22	Closing entries	1.875	1.569	69	2.896	1.309	70
123	Operate cash register	1.833	1.494	70	3.563	1.147	12
132	Operate a terminal to a computer system	1.792	1.318	71	2.021	1.211	113
51	Post closing trial balance	1.792	1.474	72	3.375	1.196	25
66	Interest receivable	1.792	1.474	73	2.583	1.088	87
70	Trade discounts	1.750	1.452	74	2.958	1.071	66
35	Purchase of materials	1.708	1.233	75	3.146	1.111	44
53	Straight line depreciation	1.708	1.334	76	2.583	1.200	88
38	Data in ledgers from special journal	1.667	1.239	77	3.292	1.166	31
56	Declining balance depreciation	1.667	1.239	78	2.396	1.162	103
115	Balance sheet analysis	1.667	1.239	79	2.438	1.367	101

Table 18 continued.

Task Number	Task Description	Employees			Teachers		
		Mean	SD	Rank	Mean	SD	Rank
116	Income statement analysis	1.667	1.239	80	2.438	1.367	102
87	Balance sheet preparation	1.667	1.274	81	3.167	1.294	42
67	Interest payable	1.667	1.308	82	2.688	1.053	83
30	Entries for depreciation	1.625	1.279	83	2.563	1.270	93
31	Entries for bad debts	1.625	1.279	84	2.521	1.203	95
117	Analysis of accounts receivable	1.583	1.213	85	2.458	1.202	100
47	Work with promissory notes	1.542	1.179	86	2.542	1.220	94
9	Purchase returns and allowances journal	1.542	1.285	87	2.771	1.153	81
10	Voucher register	1.542	1.285	88	2.958	0.967	65
89	Capital statement preparation	1.500	1.022	89	3.000	1.185	63
55	Sum-of-the-years digits depreciation	1.500	1.180	90	2.354	1.176	105
92	Cash flow statement preparation	1.500	1.180	91	2.396	1.267	104
125	Operate bookkeeping machine	1.500	1.251	92	3.208	1.071	38
60	Inventory physical count	1.458	0.932	93	2.896	1.171	69
91	Statement of changes in financial position preparation	1.417	0.974	94	2.500	1.321	99
102	Percentage of increase or decrease	1.417	1.018	95	1.875	1.214	119
128	Operate computer	1.417	1.060	96	1.833	1.098	121
25	Entries for issuance of materials	1.417	1.139	97	2.813	1.266	79
36	Post issuance of materials	1.417	1.139	98	3.063	1.174	52
37	Opening a set of books	1.417	1.139	99	2.583	1.471	89

Table 18 continued.

Task Number	Task Description	Employees			Teachers		
		Mean	SD	Rank	Mean	SD	Rank
90	Retained earnings statement pre- paration	1.375	0.875	100	2.688	1.257	84
68	Markup	1.375	1.013	101	2.854	1.052	72
11	Petty cash register	1.375	1.056	102	3.229	1.036	37
41	Perpetual inventory	1.375	1.056	103	3.000	1.149	62
46	Discount notes	1.375	1.056	104	2.646	1.360	86
54	Units of production depreciation	1.333	0.917	105	2.333	1.191	106
59	Inventory amount on hand	1.292	0.690	106	2.813	1.197	78
23	Entries to adjust inventory ledger cards	1.292	0.806	107	2.563	1.270	92
100	Current ratio	1.292	0.908	108	1.771	1.134	127
129	Write programs	1.292	0.908	109	1.688	1.114	132
130	Initiate and prepare flow charts	1.250	0.608	110	1.771	1.057	125
57	Depletion	1.250	0.737	111	2.188	1.123	108
113	Earnings per share of common stock	1.208	0.588	112	1.833	1.098	120
114	Price-earnings ratio	1.208	0.588	113	1.792	1.091	124
69	Markdown	1.208	0.658	114	2.854	1.052	73
104	Common size statements	1.208	0.721	115	1.688	1.114	131
62	FIFO inventory	1.167	0.565	116	2.125	1.104	109
64	Weighted average inventory	1.167	0.565	117	2.042	1.129	112
65	Specific inventory	1.167	0.565	118	1.979	1.082	115
103	Trend percentages	1.167	0.565	119	1.792	1.166	123

Table 18 continued.

Task Number	Task Description	Employees			Teachers		
		Mean	SD	Rank	Mean	SD	Rank
61	Perpetual inventory	1.125	0.448	120	2.563	1.090	90
101	Acid test ratio	1.125	0.448	121	1.750	1.120	129
105	Turnover of accounts receivable	1.125	0.448	122	2.000	1.203	114
106	Day's sales uncollected	1.125	0.448	123	1.896	1.171	118
107	Runover of merchandise inventory	1.125	0.448	124	1.917	1.164	117
108	Capital contributions of owners and creditors	1.125	0.448	125	1.979	1.229	116
112	Rate of return on common stockholders' equity	1.125	0.448	126	1.771	1.096	126
118	Dividends per share	1.125	0.448	127	2.083	1.182	111
131	Use pegboard system	1.125	0.612	128	2.250	1.280	107
63	LIFO inventory	1.083	0.408	129	2.083	1.069	110
109	Pledged plant assets to long-term liabilities	1.042	0.204	130	1.750	1.082	128
110	Times fixed interest charges were earned	1.042	0.204	131	1.813	1.104	122
111	Rate of return on total assets employed	1.042	0.204	132	1.729	1.086	130

Ranking of task means of businesses for importance

Employee responses ranked from the highest task mean to the lowest task mean for importance are shown in Table 19. Teachers' responses to the same tasks are shown in a second set of columns in the table. Operating telephone equipment, calculators and ten-key adding machines were the three highest task means by employees for importance. Figuring bank deposits was the next highest rated task. Tasks involving payroll preparation make up the remaining tasks in the highest rated 10 tasks.

Of the 10 lowest rated tasks, 9 were involved with financial statement analysis. Using pegboard systems was the lowest rated task by employees for importance.

Table 19. Ranking (based on means of employees) for employees and teachers on Importance.

Task Number	Task Description	Employees			Teachers		
		Mean	SD	Rank	Mean	SD	Rank
122	Operate telephone equipment	4.542	0.932	1	3.813	1.142	14
120	Operate calculator	4.417	1.176	2	4.271	0.765	2
119	Operate ten-key adding machine	4.292	1.268	3	4.333	0.663	1
28	Bank deposits	3.833	1.274	4	4.125	0.937	5
72	Handle time cards	3.625	1.498	5	3.813	0.938	12
39	Payroll tax records	3.583	1.316	6	3.750	1.042	20
15	Payroll ledgers	3.583	1.442	7	4.042	1.051	6
29	Withholding tax calculations	3.583	1.530	8	3.625	1.160	34
73	Figures payroll	3.542	1.587	9	3.792	0.967	15
81	FICA taxes	3.333	1.494	10	3.750	1.062	21
82	State unemployment taxes	3.333	1.494	11	3.583	1.145	36
83	Federal unemployment taxes	3.333	1.494	12	3.625	1.123	33
84	Federal withholding	3.250	1.567	13	3.708	1.051	26
85	State withholding	3.250	1.567	14	3.708	1.051	27
126	Prepare input for automated processing	3.250	1.700	15	2.708	1.148	94
13	Accounts receivable ledger	3.208	1.414	16	4.229	0.805	3
74	Overtime	3.208	1.693	17	3.813	0.960	13
124	Operate check protector	3.208	1.769	18	3.271	1.198	54
86	Workmen's compensation	3.167	1.633	19	3.438	1.201	44
2	Cash receipts journal	3.125	1.513	20	3.958	1.071	8

Table 19 continued.

Task Number	Task Description	Employees			Teachers		
		Mean	SD	Rank	Mean	SD	Rank
16	Accounts or vouchers payable ledger	3.042	1.574	21	3.771	0.994	16
48	Checking account	3.042	1.628	22	4.208	0.898	4
127	Utilize printed output	3.000	1.794	23	2.750	1.280	91
76	Vacation and holiday pay	2.958	1.654	24	3.479	1.130	42
12	General ledger	2.875	1.513	25	3.958	0.874	7
6	Sales journal	2.833	1.494	26	3.667	0.996	28
3	Cash payments journal	2.792	1.503	27	3.896	1.134	11
79	Group life insurance premiums	2.750	1.595	28	3.104	1.189	65
80	Medical and hospitalization plan premiums	2.750	1.595	29	3.229	1.115	58
26	Entries for correcting	2.708	1.601	30	3.021	1.139	72
75	Shift premiums	2.708	1.781	31	3.375	1.214	46
77	Bonuses	2.667	1.633	32	3.313	1.170	49
1	General journal	2.625	1.408	33	3.625	1.084	32
19	Journal entries for original set of books	2.625	1.439	34	3.104	1.356	67
98	Schedule of accounts receivable	2.625	1.439	35	3.563	1.109	37
20	Data for electronic equipment	2.625	1.555	36	2.667	1.243	98
21	Adjusting entries	2.625	1.583	37	3.000	1.288	76
93	Employee withholding reports	2.583	1.692	38	3.250	1.194	56
94	FICA reports	2.583	1.692	39	3.271	1.162	53
99	Schedule of accounts payable	2.500	1.445	40	3.521	1.130	40

Table 19 continued.

Task Number	Task Description	Employees			Teachers		
		Mean	SD	Rank	Mean	SD	Rank
95	Federal unemployment compensation report	2.458	1.693	41	3.229	1.134	59
96	State unemployment compensation report	2.458	1.693	42	3.188	1.142	62
45	Verify balances of control account with subsidiary ledger	2.458	1.719	43	3.708	0.898	25
4	Check register	2.417	1.381	44	3.667	1.243	30
49	Petty cash records	2.417	1.501	45	3.917	0.942	10
121	Operate dictating equipment	2.417	1.717	46	2.938	1.210	80
40	Sales tax records	2.375	1.439	47	3.583	1.127	35
97	State sales and use tax report	2.375	1.610	48	3.250	1.139	55
43	Add (foot), balance and total columns in special journals	2.333	1.404	49	3.708	0.874	24
32	Entries in ledgers from journals	2.333	1.435	50	3.938	0.885	9
78	Pension and annuity payments	2.333	1.435	51	3.021	1.296	75
42	Add (foot) and balance ledger accounts	2.292	1.459	52	3.750	0.978	19
24	Entries for purchase of materials	2.292	1.517	53	3.208	1.220	60
7	Sales returns and allowances journal	2.250	1.452	54	2.979	1.082	77
123	Operate cash register	2.250	1.726	55	3.771	1.077	18

Table 19 continued.

Task Number	Task Description	Employees			Teachers		
		Mean	SD	Rank	Mean	SD	Rank
8	Purchases journal	2.208	1.351	56	3.729	1.026	23
5	Combined cash journal	2.167	1.341	57	3.750	1.101	22
33	Post adjusting entries	2.167	1.341	58	3.188	1.142	61
27	Expense accounts	2.167	1.404	59	3.271	1.144	51
88	Income statement preparation	2.167	1.453	60	3.542	1.220	39
44	Rule and balance accounts	2.167	1.494	61	3.396	1.284	45
58	Uncollectable accounts	2.167	1.523	62	2.708	1.129	93
14	Notes receivable ledger	2.125	1.292	63	3.104	1.225	66
52	Worksheet	2.125	1.329	64	3.646	1.062	31
34	Post closing entries	2.125	1.361	65	3.271	1.086	50
17	Plant (fixed assets) ledger	2.125	1.424	66	2.646	1.194	99
10	Voucher register	2.083	1.442	67	2.896	0.973	83
22	Closing entries	2.083	1.472	68	3.063	1.343	68
18	Materials and stores ledger	2.000	1.319	69	2.917	1.164	82
87	Balance sheet preparation	2.000	1.319	70	3.542	1.220	38
53	Straight line depreciation	1.917	1.283	71	2.854	1.203	86
30	Entries for depreciation	1.917	1.316	72	2.750	1.194	90
31	Entries for bad debts	1.917	1.316	73	2.688	1.114	95
89	Capital statement preparation	1.917	1.316	74	3.354	1.211	48
132	Operate a terminal to a computer system	1.917	1.381	75	2.188	1.197	111

Table 19 continued.

Task Number	Task Description	Employees			Teachers		
		Mean	SD	Rank	Mean	SD	Rank
115	Balance sheet analysis	1.875	1.191	76	2.688	1.475	96
116	Income statement analysis	1.875	1.191	77	2.688	1.475	97
50	Trial balance	1.875	1.227	78	3.771	1.057	17
90	Retained earnings statement preparation	1.875	1.296	79	3.042	1.129	71
91	Statement of changes in financial position preparation	1.833	1.167	80	2.813	1.249	87
92	Cash flow statement preparation	1.833	1.167	81	2.604	1.144	101
11	Petty cash register	1.833	1.239	82	3.479	1.052	41
23	Entries to adjust inventory ledger cards	1.833	1.239	83	2.604	1.198	102
35	Record purchase of materials	1.833	1.239	84	3.354	1.041	47
38	Data in ledgers from special journal	1.833	1.239	85	3.438	1.050	43
117	Analysis of accounts receivable	1.833	1.274	86	2.771	1.341	89
25	Entries for issuance of materials	1.833	1.308	87	2.938	1.137	79
60	Inventory physical count	1.833	1.341	88	3.042	1.031	69
51	Post closing trial balance	1.792	1.215	89	3.667	1.059	29
9	Purchase returns and allowances journal	1.792	1.250	90	2.958	1.091	78

Table 19 continued.

Task Number	Task Description	Employees			Teachers		
		Mean	SD	Rank	Mean	SD	Rank
71	Cash discount	1.792	1.382	91	3.229	1.096	57
125	Operate bookkeeping machine	1.792	1.532	92	3.167	1.038	63
56	Declining balance depreciation	1.750	1.113	93	2.479	1.130	104
41	Perpetual inventories	1.750	1.189	94	2.917	1.108	81
36	Record issuance of materials	1.750	1.225	95	3.271	1.144	52
67	Interest payable	1.750	1.260	96	2.875	1.123	84
55	Sum-of-the-years digits depreciation	1.708	1.197	97	2.458	1.166	105
66	Interest receivable	1.708	1.268	98	2.771	1.134	88
70	Trade discounts	1.708	1.268	99	3.103	1.057	64
47	Work with promissory notes	1.708	1.301	100	2.563	1.270	103
59	Inventory amount on hand	1.625	1.096	101	3.042	1.091	70
37	Opening a set of books	1.625	1.173	102	2.875	1.409	85
68	Markup	1.583	1.176	103	3.021	1.139	73
69	Markdown	1.583	1.176	104	3.021	1.139	74
54	Units of production depreciation	1.542	0.977	105	2.438	1.165	106
62	FIFO inventory	1.500	1.063	106	2.188	1.179	110
64	Weighted average inventory	1.500	1.063	107	2.104	1.153	113
65	Specific inventory	1.500	1.063	108	2.063	1.192	114
61	Perpetual inventory	1.458	1.021	109	2.729	1.086	92
46	Discount notes	1.458	1.062	110	2.625	1.299	100

Table 19 continued.

Task Number	Task Description	Employees			Teachers		
		Mean	SD	Rank	Mean	SD	Rank
102	Percentage of increase or decrease	1.417	0.776	111	1.854	1.091	123
57	Depletion	1.417	0.929	112	2.208	1.031	109
63	LIFO inventory	1.417	1.018	113	2.104	1.134	112
128	Operate computer	1.417	1.060	114	2.000	1.092	115
130	Initiate and prepare flowcharts	1.375	0.770	115	1.917	1.088	120
118	Dividends per share	1.333	0.761	116	2.271	1.144	107
129	Write programs	1.333	0.816	117	1.917	1.108	121
103	Trend percentages	1.292	0.608	118	1.792	1.010	126
100	Current ratio	1.292	0.624	119	1.792	1.010	125
107	Turnover of merchandise inventory	1.292	0.690	120	2.000	1.111	116
108	Capital contributions of owners and creditors	1.292	0.690	121	1.958	1.166	118
105	Turnover of accounts receivable	1.250	0.608	122	1.979	1.082	117
113	Earnings per share of common stock	1.208	0.588	123	1.875	1.044	122
114	Price-earnings ratio	1.208	0.588	124	1.750	0.911	130
101	Acid test ratio	1.167	0.482	125	1.771	0.994	129
104	Common size statements	1.167	0.482	126	1.729	0.962	132
106	Day's sales uncollected	1.167	0.482	127	1.917	1.069	119
109	Pledged plant assets to long- term liabilities	1.125	0.448	128	1.750	0.957	131
110	Times fixed interest charges were earned	1.125	0.448	129	1.771	0.951	127

Table 19 continued.

Task Number	Task Description	Employees			Teachers		
		Mean	SD	Rank	Mean	SD	Rank
111	Rate of return on total assets employed	1.125	0.448	130	1.771	0.973	128
112	Rate of return on common stock- holder's equity	1.125	0.448	131	1.813	0.960	124
131	Use pegboard system	1.125	0.448	132	2.229	1.134	108

Tasks ranked from the highest mean to the lowest mean for teachers are shown in Table 20 for frequency, Table 21 for performance and Table 22 for importance. The means for responses of all businesses are matched with the appropriate tasks.

Ranking of task means of teachers for frequency

Teachers' responses ranked from the highest task mean to the lowest task mean for frequency are shown in Table 20. Employees responses for all businesses combined are shown in a second set of columns in the table. Operating ten-key adding machines, calculators, telephone equipment and cash registers were all rated in the highest 10 rated tasks by teachers for frequency. Tasks relating to checking accounts were in the highest 10. Working with cash payments and cash receipts journals, accounts receivable ledgers and petty cash records completed the highest 10 tasks.

All of the 10 lowest rated tasks were involved with financial statement analysis.

Table 20. Ranking (based on means of teachers) for teachers and employees on Frequency.

Task Number	Task Description	Teachers			Employees		
		Mean	SD	Rank	Mean	SD	Rank
119	Operate ten-key adding machine	4.896	0.425	1	4.375	1.439	3
120	Operate calculator	4.813	0.641	2	4.667	1.129	2
48	Checking account	4.438	1.009	3	3.125	1.702	10
28	Bank deposits	4.354	0.911	4	4.167	1.341	4
122	Operate telephone equipment	4.354	1.345	5	4.833	0.816	1
3	Cash payments journal	4.292	1.148	6	2.792	1.769	20
2	Cash receipts journal	4.292	1.184	7	3.417	1.886	7
13	Accounts receivable ledger	4.271	0.792	8	3.417	1.640	8
123	Operate cash register	4.271	1.440	9	1.833	1.659	56
49	Petty cash records	4.188	1.045	10	2.458	1.744	30
32	Entries in ledgers from journals	4.167	0.834	11	2.333	1.551	37
6	Sales journals	4.083	1.088	12	2.708	1.829	21
5	Combined cash journal	4.063	1.327	13	1.917	1.442	51
12	General ledger	3.958	0.824	14	2.583	1.530	25
16	Accounts or vouchers payable ledger	3.938	0.976	15	2.667	1.633	22
8	Purchases journal	3.938	1.156	16	1.917	1.442	52
1	General journal	3.854	1.072	17	2.542	1.587	28
4	Check register	3.813	1.439	18	2.625	1.765	23
11	Petty cash register	3.750	1.229	19	1.417	1.176	81
72	Handle time cards	3.729	0.939	20	3.500	1.445	5

Table 20 continued.

Task Number	Task Description	Teachers			Employees		
		Mean	SD	Rank	Mean	SD	Rank
125	Operate bookkeeping machine	3.729	1.440	21	1.333	1.129	89
124	Operate check protector	3.604	1.647	22	3.125	1.895	11
74	Overtime	3.521	0.875	23	2.917	1.666	16
71	Cash discount	3.500	1.384	24	1.750	1.359	63
10	Voucher register	3.479	1.337	25	1.583	1.381	72
73	Figures payroll	3.458	0.824	26	3.292	1.517	9
27	Expense accounts	3.458	1.148	27	1.792	1.285	57
35	Record purchase of materials	3.438	1.128	28	1.625	1.279	68
15	Payroll ledger	3.417	1.028	29	3.458	1.474	6
70	Trade discounts	3.417	1.442	30	1.625	1.279	69
121	Operate dictating equipment	3.396	1.498	31	1.958	1.706	50
24	Entries for purchase of materials	3.313	1.240	32	2.375	1.740	34
36	Record issuance of materials	3.313	1.401	33	1.167	0.482	102
81	FICA taxes	3.271	0.917	34	2.917	1.381	15
84	Federal withholding taxes	3.271	0.939	35	2.833	1.435	17
42	Add (foot) and balance ledger accounts	3.271	1.047	36	2.167	1.579	43
38	Data in ledgers from special journal	3.271	1.180	37	1.542	1.103	73
41	Perpetual inventories	3.271	1.317	38	2.108	0.721	101
7	Sales returns and allowances journal	3.271	1.380	29	1.875	1.393	53
75	Shift premiums	3.250	1.042	40	2.167	1.659	44

Table 20 continued.

Task Number	Task Description	Teachers			Employees		
		Mean	SD	Rank	Mean	SD	Rank
9	Purchase returns and allowances journal	3.250	1.361	41	1.375	1.056	86
85	State withholding taxes	3.229	0.951	42	2.833	1.404	18
25	Entries for issuance of materials	3.188	1.468	43	1.208	0.721	100
68	Markup	3.167	1.310	44	1.250	0.737	98
45	Verify balances of control account with subsidiary ledger	3.146	0.652	45	2.167	1.404	42
43	Add (foot), balance and total columns in special journals	3.146	0.772	46	2.208	1.560	41
39	Payroll tax records	3.125	0.866	47	3.000	1.383	14
29	Withholding tax calculations	3.125	1.024	48	3.042	1.429	13
69	Markdown	3.125	1.315	49	1.167	0.637	106
20	Data for electronic equipment	3.125	1.619	50	2.458	1.841	31
126	Prepare input for automated processing	3.063	1.656	51	3.083	1.840	12
76	Vacation and holiday pay	3.021	1.082	52	2.583	1.613	26
50	Trial balance	3.000	0.799	53	1.583	1.060	70
82	State unemployment taxes	3.000	1.011	54	2.583	1.283	24
83	Federal unemployment taxes	3.000	1.011	55	2.458	1.351	29
40	Sales tax records	3.000	1.031	56	2.042	1.429	46
14	Notes receivable ledgers	3.000	1.203	57	2.000	1.319	48
127	Utilize printed output	3.000	1.663	58	2.917	1.840	17

Table 20 continued.

Task Number	Task Description	Teachers			Employees		
		Mean	SD	Rank	Mean	SD	Rank
98	Schedule of accounts receivable	2.917	0.613	59	2.417	1.472	32
99	Schedule of accounts payable	2.917	0.613	60	2.333	1.435	35
18	Materials and stores ledger	2.917	1.252	61	1.583	1.213	71
44	Rule and balance accounts	2.896	0.994	62	1.750	1.250	62
80	Medical and hospitalization plan premiums	2.875	1.064	63	2.542	1.560	27
77	Bonuses	2.854	1.052	64	2.042	1.439	47
26	Entries for correcting	2.854	1.130	65	2.333	1.494	36
52	Worksheet	2.833	0.834	66	1.667	1.090	67
86	Workmen's compensation	2.833	1.078	67	2.208	1.215	40
51	Post closing trial balance	2.813	0.762	68	1.333	0.702	87
79	Group life insurance premiums	2.813	1.104	69	2.292	1.398	38
78	Pension and annuity payments	2.771	1.115	70	1.958	1.459	49
61	Perpetual inventory	2.688	1.223	71	1.125	0.448	110
88	Income statement preparation	2.646	0.812	72	1.458	0.721	75
87	Balance sheet preparation	2.646	0.838	73	1.375	0.711	84
33	Record adjusting entries	2.604	0.792	74	2.042	1.301	45
34	Record closing entries	2.604	0.818	75	1.792	1.318	58
89	Capital statement preparation	2.583	0.710	76	1.292	0.751	94
46	Discount notes	2.563	1.270	77	1.083	0.408	117
22	Closing entries	2.542	0.988	78	1.500	0.978	74

Table 20 continued.

Task Number	Task description	Teachers			Employees		
		Mean	SD	Rank	Mean	SD	Rank
59	Inventory amount on hand	2.542	1.010	79	1.292	0.690	93
19	Journal entries for original set of books	2.542	1.543	80	2.417	1.530	33
67	Interest payable	2.521	0.945	81	1.417	0.776	77
131	Use pegboard systems	2.521	1.624	82	1.167	0.816	107
21	Adjusting entries	2.500	0.945	83	2.250	1.726	39
90	Retained earnings statement preparation	2.479	0.714	84	1.208	0.588	99
58	Uncollectable accounts	2.479	0.967	85	1.708	1.301	65
47	Work with promissory notes	2.479	1.130	86	1.292	0.690	92
66	Interest receivable	2.458	0.898	87	1.458	0.833	76
132	Operate a terminal to a computer system	2.438	1.583	88	1.708	1.429	66
93	Employee withholding report	2.417	0.739	89	1.833	0.868	54
94	FICA report	2.396	0.676	90	1.833	0.868	55
60	Inventory physical count	2.333	0.834	91	1.292	0.624	91
17	Plant (fixed assets) ledger	2.313	0.949	92	1.708	1.122	64
23	Entries to adjust inventory ledger cards	2.292	0.824	93	1.167	0.565	104
31	Entries for bad debts	2.292	0.849	94	1.417	0.974	80
95	Federal unemployment compensation report	2.271	0.676	95	1.750	0.794	59

Table 20 continued.

Task Number	Task Description	Teachers			Employees		
		Mean	SD	Rank	Mean	SD	Rank
96	State unemployment compensation report	2.271	0.676	96	1.750	0.794	60
97	State sales and use tax report	2.271	0.736	97	1.750	0.794	61
92	Cash flow statement preparation	2.208	0.898	98	1.292	0.751	95
128	Operate computer	2.208	1.570	99	1.333	1.007	88
91	Statement of changes in financial position report	2.188	0.842	100	1.167	0.482	103
30	Entries for depreciation	2.167	0.808	101	1.375	0.711	82
117	Analysis of accounts receivable	2.167	0.953	102	1.375	0.711	85
53	Straight line depreciation	2.104	0.881	102	1.375	0.711	83
115	Balance sheet analysis	2.063	0.998	104	1.417	0.776	78
116	Income statement analysis	2.063	0.998	105	1.417	0.776	79
106	Day's sales uncollected	2.000	1.353	106	1.042	0.204	125
105	Turnover of accounts receivable	1.917	1.007	107	1.042	0.204	124
56	Declining balance depreciation	1.896	0.831	108	1.292	0.624	90
62	FIFO inventory	1.875	0.815	109	1.083	0.408	118
63	LIFO inventory	1.833	0.753	110	1.000	0.000	128
57	Depletion	1.833	0.781	111	1.042	0.204	123
54	Units of production depreciation	1.833	0.834	112	1.042	0.204	122
64	Weighted average inventory	1.813	0.762	113	1.083	0.408	119
65	Specific inventory	1.813	0.790	114	1.083	0.282	114
107	Turnover of merchandise inventory	1.813	0.816	115	1.167	0.565	105

Table 20 continued.

Task Number	Task Description	Teachers			Employees		
		Mean	SD	Rank	Mean	SD	Rank
55	Sum-of-the-years digits depreciation	1.792	0.798	116	1.083	0.282	113
118	Dividends per share	1.771	0.805	117	1.083	0.408	121
129	Write programs	1.771	1.207	118	1.292	0.999	96
108	Capital contributions of owners and creditors	1.729	0.818	119	1.042	0.204	126
102	Percentage of increase or decrease	1.708	0.922	120	1.250	0.608	97
37	Opening a set of books	1.708	1.051	121	1.125	0.338	108
130	Initiate and prepare flowcharts	1.708	1.051	122	1.125	0.338	109
113	Earnings per share of common stock	1.667	0.724	123	1.083	0.282	115
114	Price earnings ratio	1.646	0.668	124	1.083	0.282	116
100	Current ratio	1.625	0.815	125	1.125	0.448	111
103	Trend percentages	1.583	0.767	126	1.125	0.448	112
112	Rate of return on common stockholder's equity	1.563	0.649	127	1.042	0.204	127
104	Common size statements	1.542	0.651	128	1.083	0.408	120
110	Times fixed interest charges were earned	1.542	0.743	129	1.000	0.000	131
101	Acid test ratio	1.521	0.652	130	1.000	0.000	129
109	Pledged plant assets to long-term liabilities	1.521	0.714	131	1.000	0.000	130
111	Rate of return on total assets employed	1.479	0.618	132	1.000	0.000	132

Ranking of task means of teachers for performance

Teachers' responses ranked from the highest task mean to the lowest task mean for performance are shown in Table 21. Employees responses for all businesses combined are shown in a second set of columns in the table. Operating adding machines, calculators and telephone equipment were among the highest 10 rated tasks of teachers for performance. Tasks involving checking accounts were also in the highest 10 rated tasks. Tasks involving working with ledgers made up 4 of the top 10 rated tasks. Working with petty cash records was also in the highest rated 10 tasks for performance.

Of the 10 lowest rated tasks, 8 were involved with financial statement analysis. The other 2 lowest rated tasks were preparing flow charts and writing programs.

Table 21. Ranking (based on means of teachers) for teachers and employees on Performance.

Task Number	Task Description	Teachers			Employees		
		Mean	SD	Rank	Mean	SD	Rank
119	Operate ten-key adding machine	4.125	0.761	1	4.042	1.301	3
120	Operate calculator	4.042	0.824	2	4.208	1.141	2
48	Checking account	3.896	0.973	3	2.958	1.546	20
32	Entries in ledgers from journals	3.875	0.981	4	2.250	1.359	48
13	Accounts receivable ledger	3.854	0.989	5	3.333	1.523	8
49	Petty cash records	3.667	0.975	6	2.500	1.642	40
122	Operate telephone equipment	3.646	1.158	7	4.417	0.881	1
28	Bank deposits	3.625	1.084	8	3.792	1.250	4
12	General ledger	3.604	1.026	9	2.833	1.551	24
15	Payroll ledger	3.604	1.162	10	3.458	1.474	6
2	Cash receipts journal	3.563	1.029	11	3.208	1.693	16
123	Operate cash register	3.563	1.147	12	1.833	1.494	70
72	Handle time cards	3.479	0.922	13	3.500	1.474	5
42	Add (foot) and balance ledger accounts	3.479	1.031	14	2.333	1.711	46
3	Cash payments journal	3.479	1.052	15	2.792	1.641	26
43	Add (foot), balance and total columns in special journals	3.438	1.050	16	2.417	1.666	43
45	Verify balances of control account with subsidiary ledger	3.438	1.050	17	2.375	1.637	44
16	Accounts or vouchers payable ledger	3.438	1.070	18	2.917	1.640	23

Table 21 continued.

Task Number	Task Description	Teachers			Employees		
		Mean	SD	Rank	Mean	SD	Rank
50	Trial balance	3.438	1.219	19	1.958	1.488	63
74	Overtime	3.417	0.942	20	3.000	1.694	19
73	Figures payroll	3.417	0.986	21	3.417	1.558	7
5	Combined cash journal	3.417	1.088	22	1.875	1.329	66
39	Payroll tax records	3.396	1.026	23	3.292	1.197	9
40	Sales tax records	3.375	1.064	24	2.208	1.414	49
51	Post closing trial balance	3.375	1.196	25	1.792	1.474	72
6	Sales journal	3.354	1.021	26	2.583	1.613	33
98	Schedule of accounts receivable	3.333	0.975	27	2.708	1.574	28
99	Schedule of accounts payable	3.333	0.975	28	2.500	1.504	37
8	Purchases journal	3.313	1.014	29	2.042	1.459	57
29	Withholding tax calculations	3.313	1.170	30	3.250	1.482	12
38	Data in ledgers from special journal	3.292	1.166	31	1.667	1.239	77
52	Worksheet	3.292	1.237	32	2.125	1.541	54
44	Rule and balance accounts	3.271	1.267	33	1.917	1.472	64
1	General journal	3.250	1.000	34	2.750	1.539	27
84	Federal withholding tax	3.229	0.994	35	3.208	1.560	14
85	State withholding tax	3.229	0.994	36	3.208	1.560	15
11	Petty cash register	3.229	1.036	37	1.375	1.056	102
125	Operate bookkeeping machine	3.208	1.071	38	1.500	1.251	92

Table 21 continued.

Task Number	Task Description	Teachers			Employees		
		Mean	SD	Rank	Mean	SD	Rank
27	Expense accounts	3.208	1.129	39	2.000	1.383	60
4	Check register	3.208	1.184	40	2.583	1.586	31
76	Vacation and holiday pay	3.167	1.078	41	2.833	1.685	25
87	Balance sheet preparation	3.167	1.294	42	1.667	1.274	81
81	FICA Taxes	3.146	1.052	43	3.292	1.488	10
35	Record purchase of materials	3.146	1.111	44	1.708	1.233	75
88	Income statement preparation	3.146	1.288	45	1.875	1.361	68
71	Cash discount	3.104	1.096	46	1.917	1.530	65
34	Record closing entries	3.104	1.225	47	2.000	1.383	61
33	Record adjusting entries	3.083	1.217	48	2.167	1.373	50
94	FICA reports	3.083	1.235	49	2.625	1.555	30
93	Employee withholding reports	3.083	1.269	50	2.625	1.555	29
124	Operate check protector	3.083	1.269	51	2.958	1.756	22
36	Record issuance of material	3.063	1.174	52	1.417	1.139	98
75	Shift premiums	3.063	1.174	53	2.167	1.633	52
95	Federal unemployment compensation	3.063	1.192	54	2.500	1.560	38
97	State sales and use tax report	3.063	1.210	55	2.458	1.532	42
121	Operate dictating equipment	3.063	1.210	56	2.125	1.650	55
82	State unemployment taxes	3.042	1.091	57	3.292	1.488	11
83	Federal unemployment taxes	3.042	1.091	58	3.208	1.560	13

Table 21 continued.

Task Number	Task Description	Teachers			Employees		
		Mean	SD	Rank	Mean	SD	Rank
14	Notes receivable ledgers	3.021	1.194	59	2.125	1.424	53
96	State unemployment compensation	3.021	1.229	60	2.500	1.560	39
80	Medical and hospitalization plan premium	3.000	1.072	61	2.583	1.586	32
41	Perpetual inventories	3.000	1.149	62	1.375	1.056	103
89	Capital statement preparation	3.000	1.185	63	1.500	1.022	89
77	Bonuses	2.979	1.139	64	2.292	1.628	47
10	Voucher register	2.958	0.967	65	1.542	1.285	88
70	Trade discounts	2.958	1.071	66	1.750	1.452	74
24	Entries for purchase of materials	2.958	1.271	67	2.167	1.494	51
79	Group life insurance premiums	2.896	1.115	68	2.458	1.560	41
60	Inventory physical count	2.896	1.171	69	1.458	0.932	93
22	Closing entries	2.896	1.309	70	1.875	1.569	69
21	Adjusting entries	2.875	1.265	71	2.333	1.659	45
68	Markup	2.854	1.052	72	1.375	1.013	101
69	Markdown	2.854	1.052	73	1.208	0.658	114
18	Materials and stores ledgers	2.854	1.111	74	1.875	1.329	67
19	Journal entries for original set of books	2.854	1.353	75	1.500	1.445	36
26	Entries for correcting	2.833	1.277	76	2.583	1.640	34
86	Workmen's compensation report	2.813	1.104	77	2.958	1.628	21
59	Inventory amount on hand	2.813	1.197	78	1.292	0.690	106

Table 21 continued.

Task Number	Task Description	Teachers			Employees		
		Mean	SD	Rank	Mean	SD	Rank
25	Entries for issuance of materials	2.813	1.266	79	1.417	1.139	97
7	Sales returns and allowances journal	2.792	1.129	80	2.000	1.532	62
9	Purchase returns and allowances journal	2.771	1.153	81	1.542	1.285	87
78	Pension and annuity payments	2.750	1.194	82	2.083	1.501	56
67	Interest payable	2.688	1.095	83	1.667	1.308	82
90	Retained earnings statement preparation	2.688	1.257	84	1.375	0.875	100
17	Plant (fixed assets) ledger	2.646	1.158	85	2.042	1.459	58
46	Discount notes	2.646	1.360	86	1.375	1.056	104
66	Interest receivable	2.583	1.088	87	1.792	1.474	73
53	Straight line depreciation	2.583	1.200	88	1.708	1.334	76
37	Opening a set of books	2.583	1.471	89	1.417	1.139	99
61	Perpetual inventory	2.563	1.090	90	1.125	0.448	120
58	Uncollectable accounts	2.563	1.128	91	2.042	1.574	59
23	Entries to adjust inventory ledger cards	2.563	1.270	92	1.292	0.806	107
30	Entries for depreciation	2.563	1.270	93	1.625	1.279	83
47	Work with promissory notes	2.542	1.220	94	1.542	1.179	86
31	Entries for bad debts	2.521	1.203	95	1.625	1.279	84
20	Data for electronic equipment	2.521	1.288	96	2.583	1.692	35

Table 21 continued.

Task Number	Task Description	Teachers			Employees		
		Mean	SD	Rank	Mean	SD	Rank
126	Prepare input for automated processing	2.521	1.288	97	3.125	1.650	17
127	Utilize printed output	2.500	1.255	98	3.042	1.681	18
91	Statement of changes in financial position preparation	2.500	1.321	99	1.417	0.974	94
117	Analysis of accounts receivable	2.458	1.202	100	1.583	1.213	85
115	Balance sheet analysis	2.438	1.367	101	1.667	1.239	79
116	Income statement analysis	2.438	1.367	102	1.667	1.239	80
56	Declining balance depreciation	2.396	1.162	103	1.667	1.239	78
92	Cash flow statement preparation	2.396	1.267	104	1.500	1.180	91
55	Sum-of-the-years digits depreciation	2.354	1.176	105	1.500	1.180	90
54	Units of production depreciation	2.333	1.191	106	1.333	0.917	105
131	Use pegboard system	2.250	1.280	107	1.125	0.612	128
57	Depletion	2.188	1.123	108	1.250	0.737	111
62	FIFO inventory	2.125	1.104	109	1.167	0.565	116
63	LIFO inventory	2.083	1.069	110	1.083	0.408	129
118	Dividends per share	2.083	1.182	111	1.125	0.448	127
64	Weighted average inventory	2.042	1.129	112	1.167	0.565	117
132	Operate a terminal to a computer system	2.021	1.211	113	1.792	1.318	71
105	Turnover of accounts receivable	2.000	1.203	114	1.125	0.448	122
65	Specific inventory	1.979	1.082	115	1.167	0.565	118

Table 21 continued.

Task Number	Task Description	Teachers			Employees		
		Mean	SD	Rank	Mean	SD	Rank
108	Capital contributions of owners and creditors	1.979	1.229	116	1.125	0.448	125
107	Turnover of merchandise inventory	1.917	1.164	117	1.125	0.448	124
106	Day's sales uncollected	1.896	1.171	118	1.125	0.448	123
102	Percentage of increase or decrease	1.875	1.214	119	1.417	1.018	95
113	Earnings per share of common stock	1.833	1.098	120	1.208	0.588	112
128	Operate computer	1.833	1.098	121	1.417	1.060	96
110	Times fixed interest charges were earned	1.813	1.104	122	1.042	0.204	131
103	Trend percentages	1.792	1.166	123	1.167	0.565	119
114	Price earnings ratio	1.792	1.091	124	1.208	0.585	113
130	Initiate and prepare flow charts	1.771	1.057	125	1.250	0.608	110
112	Rate of return on common stock- holder's equity	1.771	1.096	126	1.125	0.448	126
100	Current ratio	1.771	1.134	127	1.292	0.908	108
109	Pledged plant assets to long- term liabilities	1.750	1.082	128	1.042	0.204	130
101	Acid test ratio	1.750	1.120	129	1.125	0.448	121
111	Rate of return on total assets employed	1.729	1.086	130	1.042	0.204	132
104	Common size statements	1.688	1.114	131	1.208	0.721	115
129	Write programs	1.688	1.114	132	1.292	0.908	109

Ranking of task means of teachers for importance

Teachers' responses ranked from the highest task mean to the lowest task mean for importance are shown in Table 22. Employees responses for all businesses combined are shown in a second set of columns in the table.

Operating ten-key adding machines and calculators are the highest rated tasks by teachers for importance. Working with ledgers make up 4 of the highest rated 10 tasks. Tasks involving checking accounts were also in the highest 10 rated tasks. Working with cash receipts journals and petty cash records were also in the highest 10 rated tasks.

All of the 10 lowest rated tasks were involved with financial statement analysis.

Table 22. Ranking (based on means of teachers) for teachers and employees on Importance.

Task Number	Task Description	Teachers			Employees		
		Mean	SD	Rank	Mean	SD	Rank
119	Operate ten-key adding machine	4.333	0.663	1	4.292	1.268	3
120	Operate calculator	4.271	0.765	2	4.417	1.176	2
13	Accounts receivable ledger	4.229	0.805	3	3.208	1.414	16
48	Checking account	4.208	0.898	4	3.042	1.628	22
28	Bank deposits	4.125	0.937	5	3.833	1.274	4
15	Payroll ledger	4.042	1.051	6	3.583	1.442	7
12	General ledger	3.958	0.874	7	2.875	1.513	25
2	Cash receipts journal	3.958	1.071	8	3.125	1.513	20
32	Entries in ledgers from journals	3.938	0.885	9	2.333	1.435	50
49	Petty cash records	3.917	0.942	10	2.417	1.501	45
3	Cash payments journal	3.896	1.134	11	2.792	1.503	27
72	Handle time cards	3.813	0.938	12	3.625	1.498	5
74	Overtime	3.813	0.960	13	3.208	1.693	17
122	Operate telephone equipment	3.813	1.142	14	4.542	0.932	1
73	Figures payroll	3.792	0.967	15	3.542	1.587	9
16	Accounts or vouchers payable ledger	3.771	0.994	16	3.042	1.574	21
50	Trial balance	3.771	1.057	17	1.875	1.227	78
123	Operate cash register	3.771	1.077	18	2.250	1.726	55
42	Add (foot) and balance ledger accounts	3.750	0.978	19	2.292	1.459	52

Table 22 continued.

Task Number	Task Description	Teachers			Employees		
		Mean	SD	Rank	Mean	SD	Rank
39	Payroll tax records	3.750	1.042	20	3.583	1.316	6
81	FICA taxes	3.750	1.062	21	3.333	1.494	10
5	Combined cash journal	3.750	1.101	22	2.167	1.341	57
8	Purchases journal	3.729	1.026	23	2.208	1.351	56
43	Add (foot), balance and total columns in special journals	3.708	0.874	24	2.333	1.404	49
45	Verify balances of control account with subsidiary ledger	3.708	0.898	25	2.458	1.719	43
84	Federal withholding tax	3.708	1.051	26	3.250	1.567	13
85	State withholding tax	3.708	1.051	27	3.250	1.567	14
6	Sales journal	3.667	0.996	28	2.833	1.494	26
51	Post closing trial balance	3.667	1.059	29	1.792	1.215	89
4	Check register	3.667	1.243	30	2.417	1.381	44
52	Worksheet	3.646	1.062	31	2.125	1.329	64
1	General journal	3.625	1.084	32	2.625	1.408	33
83	Federal unemployment	3.625	1.123	33	3.333	1.494	12
29	Withholding tax calculation	3.625	1.160	34	3.583	1.530	8
40	Sales tax records	3.583	1.127	35	2.375	1.439	47
82	State unemployment	3.583	1.145	36	3.333	1.494	11
98	Schedule of accounts receivable	3.563	1.109	37	2.625	1.439	35
87	Balance sheet preparation	3.542	1.220	38	2.000	1.319	70
88	Income statement preparation	3.542	1.220	39	2.167	1.435	60

Table 22 continued.

Task Number	Task Description	Teachers			Employees		
		Mean	SD	Rank	Mean	SD	Rank
99	Schedule of accounts payable	3.521	1.130	40	2.500	1.445	40
11	Petty cash register	3.479	1.052	41	1.833	1.239	82
76	Vacation and holiday pay	3.479	1.130	42	2.958	1.654	24
38	Data in ledgers from special journal	3.438	1.050	43	1.833	1.239	85
86	Workmen's compensation	3.438	1.201	44	3.167	1.633	19
44	Rule and balance accounts	3.396	1.284	45	2.167	1.494	61
75	Shift premiums	3.375	1.214	46	2.708	1.781	31
35	Record purchase of materials	3.354	1.041	47	1.833	1.239	84
89	Capital statement preparation	3.354	1.211	48	1.917	1.316	74
77	Bonuses	3.313	1.170	49	2.667	1.633	32
34	Record closing entries	3.271	1.086	50	2.125	1.361	65
27	Expense accounts	3.271	1.144	51	2.167	1.404	59
36	Record issuance of materials	3.271	1.144	52	1.750	1.225	95
94	FICA reports	3.271	1.162	53	2.583	1.692	39
124	Operate check protector	3.271	1.198	54	3.208	1.769	18
97	State sales and use tax report	3.250	1.139	55	2.375	1.610	48
93	Employee withholding report	3.250	1.194	56	2.583	1.692	38
71	Cash discount	3.229	1.096	57	1.792	1.382	91
80	Medical and hospitalization plan premiums	3.229	1.115	58	2.750	1.595	29
95	Federal Unemployment compensation	3.229	1.134	59	2.458	1.693	41

Table 22 continued.

Task Number	Task Description	Mean	SD	Rank	Mean	SD	Rank
24	Entries for purchase of materials	3.208	1.220	60	2.292	1.517	53
33	Record adjusting entries	3.188	1.142	61	2.167	1.341	58
96	State unemployment compensation	3.188	1.142	62	2.458	1.693	42
125	Operate bookkeeping machine	3.167	1.038	63	1.792	1.532	92
70	Trade discounts	3.104	1.057	64	1.708	1.268	99
79	Group life insurance premiums	3.104	1.189	65	2.750	1.595	28
14	Notes receivable ledger	3.104	1.225	66	2.125	1.296	63
19	Journal entries for original set of books	3.104	1.356	67	2.625	1.439	34
22	Closing entries	3.063	1.343	68	2.083	1.472	68
60	Inventory physical count	3.042	1.031	69	1.833	1.341	88
59	Inventory amount on hand	3.042	1.091	70	1.625	1.096	101
90	Retained earnings statement pre- paration	3.042	1.129	71	1.875	1.296	79
26	Entries for correcting	3.021	1.139	72	2.708	1.601	30
68	Markup	3.021	1.139	73	1.583	1.176	103
69	Markdown	3.021	1.139	74	1.583	1.176	104
78	Pension and annuity payments	3.021	1.296	75	2.333	1.435	51
21	Adjusting entries	3.000	1.288	76	2.625	1.583	37
7	Sales returns and allowances journal	2.979	1.082	77	2.250	1.452	54
9	Purchase returns and allowances journal	2.958	1.091	78	1.792	1.250	90

Table 22 continued.

Task Number	Task Description	Teachers			Employees		
		Mean	SD	Rank	Mean	SD	Rank
25	Entries for issuance of materials	2.938	1.137	79	1.833	1.308	87
121	Operate dictating equipment	2.938	1.210	80	2.417	1.717	46
41	Perpetual inventories	2.917	1.108	81	1.750	1.189	94
18	Materials and stores ledger	2.917	1.164	82	2.000	1.319	69
10	Voucher register	2.896	0.973	83	2.083	1.442	67
67	Interest payable	2.875	1.123	84	1.750	1.260	96
37	Opening a set of books	2.875	1.409	85	1.625	1.173	102
53	Straight line depreciation	2.854	1.203	86	1.917	1.283	71
91	Statement of changes in financial position preparation	2.813	1.249	87	1.833	1.167	80
66	Interest receivable	2.771	1.134	88	1.708	1.268	98
117	Analysis of accounts receivable	2.771	1.341	89	1.833	1.274	86
30	Entries for depreciation	2.750	1.194	90	1.917	1.316	72
127	Utilize printed output	2.750	1.280	91	3.000	1.794	23
61	Perpetual inventory	2.729	1.086	92	1.458	1.021	109
58	Uncollectable accounts	2.708	1.129	93	2.167	1.523	62
126	Prepare input for automated processing	2.708	1.148	94	3.250	1.700	15
31	Entries for bad debts	2.688	1.114	95	1.917	1.316	73
115	Balance sheet analysis	2.688	1.475	96	1.875	1.191	76
116	Income statement analysis	2.688	1.475	97	1.875	1.191	77
20	Data for electronic equipment	2.667	1.243	98	2.625	1.555	36

Table 22 continued.

Task Number	Task Description	Teachers			Employees		
		Mean	SD	Rank	Mean	SD	Rank
17	Plant (fixed assets) ledger	2.646	1.194	99	2.125	1.424	66
46	Discount notes	2.625	1.299	100	1.458	1.062	110
92	Cash flow statement preparation	2.604	1.144	101	1.833	1.167	81
23	Entries to adjust inventory ledger cards	2.604	1.198	83	1.833	1.239	102
47	Work with promissory notes	2.563	1.270	103	1.708	1.301	100
56	Declining balance depreciation	2.479	1.130	104	1.750	1.113	93
55	Sum-of-the-years digits depreciation	2.458	1.166	105	1.708	1.197	97
54	Units of production depreciation	2.438	1.165	106	1.542	0.977	105
118	Dividends per share	2.271	1.144	107	1.333	0.761	116
131	Use pegboard system	2.229	1.134	108	1.125	0.448	132
57	Depletion	2.208	1.031	109	1.417	0.929	112
62	FIFO inventory	2.188	1.179	110	1.500	1.063	106
132	Operate a terminal to a computer system	2.188	1.197	111	1.917	1.381	75
63	LIFO inventory	2.104	1.134	112	1.417	1.018	113
64	Weighted average inventory	2.104	1.153	113	1.500	1.063	107
65	Specific inventory	2.063	1.192	114	1.500	1.063	108
128	Operate computer	2.000	1.092	115	1.417	1.060	114
107	Turnover of merchandise inventory	2.000	1.111	116	1.292	0.690	120
105	Turnover of accounts receivable	1.979	1.082	117	1.250	0.608	122

Table 22 continued.

Task Number	Task Description	Teachers			Employees		
		Mean	SD	Rank	Mean	SD	Rank
108	Capital contributions of owners and creditors	1.958	1.166	118	1.292	0.690	121
106	Day's sales uncollected	1.917	1.069	119	1.167	0.482	127
130	Initiate and prepare flowcharts	1.917	1.088	120	1.375	0.770	115
129	Write programs	1.917	1.108	121	1.333	0.816	117
113	Earnings per share of common stock	1.875	1.044	122	1.208	0.588	123
102	Percentage of increase or decrease	1.854	1.091	123	1.417	0.776	111
112	Rate of return on common stockholder's equity	1.813	0.960	124	1.125	0.448	131
100	Current ratio	1.792	1.010	125	1.292	0.624	119
103	Trend percentages	1.792	1.010	126	1.250	0.608	118
110	Times fixed interest charges were earned	1.771	0.951	127	1.125	0.448	129
111	Rate of return on total assets employed	1.771	0.973	128	1.125	0.448	130
101	Acid test ratio	1.771	0.994	129	1.167	0.482	125
114	Price earnings ratio	1.750	0.911	130	1.208	0.588	124
109	Pledged plant assets to long-term liabilities	1.750	0.957	131	1.125	0.448	128
104	Common size statements	1.729	0.962	132	1.167	0.482	126

Tasks ranked from the highest mean to the lowest mean for teachers are shown in Table 23 for frequency, Table 24 for performance and Table 25 for importance. The means of responses for small, medium and large businesses are shown in additional columns and matched with the appropriate tasks.

Ranking of task means of teachers for frequency with small, medium and large business means

Teachers' responses ranked from the highest task means to the lowest task means for frequency are shown in Table 23. Employee responses for small, medium and large businesses are shown in additional columns in the table. Small business employees ranked preparing bank deposits and operating telephone equipment higher than teachers. Medium business employees ranked operating telephone equipment higher than teachers. Large business employees ranked operating calculators, making bank deposits and operating telephone equipment higher than teachers.

Teachers rated the 10 lowest tasks higher than small, medium and large business. All 10 tasks were involved with financial statement analysis.

Table 23. Ranking (based on means of teachers) for teachers, small businesses, medium businesses and large businesses on Frequency.

Task Number	Task Description	Teachers		Small		Medium		Large	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
119	Operate ten-key adding machine	4.896	0.425	4.000	1.852	4.625	1.061	4.500	1.414
120	Operate calculator	4.813	0.641	4.500	1.414	4.500	1.414	5.000	0.000
48	Checking account	4.438	1.009	2.750	1.581	3.250	1.982	3.375	1.685
28	Bank deposits	4.354	0.911	4.625	0.518	3.500	2.070	4.375	0.744
122	Operate telephone equipment	4.354	1.345	5.000	0.000	4.500	1.414	5.000	0.000
3	Cash payment journal	4.292	1.148	2.750	1.581	3.000	1.927	2.625	1.996
2	Cash receipts journal	4.292	1.184	3.250	1.753	3.500	2.070	3.500	2.070
13	Accounts receivable ledger	4.271	0.792	4.250	0.886	2.125	1.642	3.875	1.553
123	Operate cash register	4.271	1.440	2.000	1.852	2.000	1.852	1.500	1.414
49	Petty cash records	4.188	1.045	1.875	1.642	2.750	1.982	2.750	1.669
32	Entries in ledgers from journals	4.167	0.834	2.000	1.195	2.500	1.773	2.500	1.773
6	Sales journals	4.083	1.088	2.750	1.909	2.375	1.923	3.000	1.852
5	Combined cash journal	4.063	1.327	1.625	1.188	2.750	1.909	1.375	0.744
12	General ledger	3.958	0.824	3.125	1.458	2.000	1.195	2.625	1.847
16	Accounts or vouchers payable ledger	3.938	0.976	2.875	1.727	2.250	1.581	2.875	1.727
8	Purchases journal	3.938	1.156	1.875	1.356	1.625	1.188	2.250	1.832
1	General journal	3.854	1.072	3.125	1.458	2.250	1.488	2.250	1.832

Table 23 continued.

Task Number	Task Description	Teachers		Small		Medium		Large	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
4	Check register	3.813	1.439	2.750	1.581	3.375	1.996	1.750	1.488
11	Petty cash register	3.750	1.229	1.000	0.000	2.000	1.852	1.250	0.707
72	Handle time cards	3.729	0.939	2.875	1.642	3.875	1.246	3.750	1.389
125	Operate bookkeeping machine	3.729	1.440	1.500	1.414	1.500	1.414	1.000	0.000
124	Operate check protector	3.604	1.647	3.750	1.753	3.000	2.138	2.625	1.847
74	Overtime	3.521	0.875	2.625	1.768	2.500	1.690	3.625	1.506
71	Cash discount	3.500	1.384	2.000	1.414	1.750	1.389	1.500	1.414
10	Voucher register	3.479	1.337	1.500	1.414	2.000	1.852	1.250	0.707
73	Figures payroll	3.458	0.824	3.625	1.303	2.500	1.690	3.750	1.389
27	Expense accounts	3.458	1.148	1.625	0.916	2.500	1.773	1.250	0.707
35	Record purchase of materials	3.438	1.128	1.500	1.069	1.375	0.744	2.000	1.852
15	Payroll ledger	3.417	1.028	3.500	1.309	3.000	1.773	3.875	1.356
70	Trade discounts	3.417	1.442	1.625	1.188	1.750	1.389	1.500	1.414
121	Operate dictating equipment	3.396	1.498	1.875	1.642	3.000	2.138	1.000	0.000
24	Entries for purchase of materials	3.313	1.240	2.250	1.753	2.625	1.847	2.250	1.832
36	Record issuance of materials	3.313	1.401	1.125	0.354	1.375	0.744	1.000	0.000
81	FICA taxes	3.271	0.917	3.125	1.458	2.375	1.685	3.250	0.886

Table 23 continued

Task Number	Task Description	Teachers		Small		Medium		Large	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
84	Federal withholding taxes	3.271	0.939	3.125	1.458	2.375	1.685	3.000	1.195
42	Add (foot) and balance ledger accounts	3.271	1.047	2.625	1.685	1.750	1.488	2.125	1.642
38	Data in ledgers from special journals	3.271	1.180	1.625	1.061	1.250	0.707	1.750	1.488
41	Perpetual inventories	3.271	1.317	1.000	0.000	1.625	1.878	1.000	0.000
7	Sales returns and allowances journal	3.271	1.380	2.000	1.604	1.625	1.878	2.000	1.512
75	Shift premiums	3.250	1.042	1.625	1.188	2.000	1.604	2.875	2.031
9	Purchase returns and allowances journal	3.250	1.361	1.000	0.000	1.875	1.642	1.250	0.707
85	State withholding taxes	3.229	0.951	3.125	1.458	2.375	1.685	3.000	1.069
25	Entries for issuance of materials	3.188	1.468	1.000	0.000	1.625	1.188	1.000	0.000
68	Markup	3.167	1.310	1.375	1.061	1.375	0.744	1.000	0.000
45	Verify balances of control account with subsidiary ledger	3.146	0.652	2.000	1.069	2.375	1.598	2.125	1.642
43	Add (foot), balance and total columns in special journals	3.146	0.772	2.625	1.685	1.750	1.488	2.250	1.581
39	Payroll tax records	3.125	0.866	3.125	0.835	2.875	1.642	3.000	1.690
29	Withholding tax calculations	3.125	1.024	3.250	1.282	2.500	1.414	3.375	1.598

Table 23 continued.

Task Number	Task Description	Teachers		Small		Medium		Large	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
69	Markdown	3.125	1.315	1.375	1.061	1.125	0.354	1.000	0.000
20	Data for electronic equipment	3.125	1.619	1.375	1.061	3.000	2.138	3.000	1.852
126	Prepare input for automated processing	3.063	1.656	1.875	1.458	3.875	1.808	3.500	1.773
76	Vacation and holiday pay	3.021	1.082	2.500	1.512	1.875	1.356	3.375	1.768
50	Trial balance	3.000	0.799	1.500	0.756	1.250	0.707	2.000	1.512
82	State unemployment taxes	3.000	1.011	2.615	1.408	2.250	1.581	2.875	0.835
83	Federal unemployment taxes	3.000	1.011	2.625	1.408	2.125	1.642	2.625	1.061
40	Sales tax records	3.000	1.031	1.625	0.916	1.875	1.356	2.625	1.847
14	Notes receivable ledgers	3.000	1.203	2.000	1.604	1.875	1.246	2.125	1.246
127	Utilize printed output	3.000	1.663	1.875	1.458	3.375	1.996	3.500	1.773
98	Schedule of accounts receivable	2.917	0.613	2.625	1.685	2.125	1.356	2.500	1.512
99	Schedule of accounts payable	2.917	0.613	2.500	1.512	2.125	1.356	2.375	1.598
18	Materials and stores ledgers	2.917	1.252	1.875	1.642	1.625	1.188	1.250	0.707
44	Rule and balance accounts	2.896	0.994	1.250	0.707	2.000	1.512	2.000	1.414
80	Medical and hospitalization plan premiums	2.875	1.064	2.500	1.690	2.375	1.598	2.750	1.581
77	Bonuses	2.854	1.052	2.000	1.309	2.000	1.604	2.125	1.642
26	Entries for correcting	2.854	1.130	2.000	1.414	2.375	1.598	2.625	1.598

Table 23 continued.

Task Number	Task Description	Teachers		Small		Medium		Large	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
52	Worksheet	2.833	0.834	2.250	1.389	1.250	0.707	1.500	0.926
86	Workmen's compensation	2.833	1.078	2.125	1.126	2.250	1.581	2.250	1.035
51	Post closing trial balance	2.813	0.762	1.500	0.756	1.250	0.707	1.250	0.707
79	Group life insurance premiums	2.813	1.104	2.250	1.389	2.375	1.598	2.250	1.389
78	Pension and annuity pay- ments	2.771	1.115	2.500	1.690	1.750	1.488	1.625	1.188
61	Perpetual inventory	2.688	1.223	1.000	0.000	1.250	0.707	1.125	0.354
88	Income statement prepara- tion	2.646	0.812	1.625	0.744	1.375	0.744	1.375	0.744
87	Balance sheet preparation	2.646	0.838	1.375	0.744	1.375	0.744	1.375	0.744
33	Record adjusting entries	2.604	0.792	2.000	1.069	1.875	1.458	2.250	1.488
34	Record closing entries	2.604	0.818	2.375	1.506	1.750	1.488	1.250	0.707
89	Capital statement pre- paration	2.583	0.710	1.500	1.069	1.125	0.354	1.250	0.707
46	Discount notes	2.563	1.270	1.000	0.000	1.250	0.707	1.000	0.000
22	Closing entries	2.542	0.988	1.375	0.518	1.375	0.744	1.750	1.488
59	Inventory amount on hand	2.542	1.010	1.000	0.000	1.250	0.707	1.625	0.916
19	Journal entries for orig- inal set of books	2.542	1.543	2.125	1.356	2.000	1.604	3.125	1.553
67	Interest payable	2.521	0.945	1.375	0.744	1.500	0.926	1.375	0.744
131	Use pegboard system	2.521	1.624	1.000	0.000	1.500	1.414	1.000	0.000
21	Adjusting entries	2.500	0.945	1.750	1.389	2.250	1.832	2.750	1.982

Table 23 continued.

Task Number	Task Description	Teachers		Small		Medium		Large	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
90	Retained earnings statement preparation	2.479	0.714	1.375	0.744	1.000	0.000	1.250	0.707
58	Uncollectable accounts	2.479	0.967	1.375	0.744	1.875	1.458	1.875	1.642
47	Work with promissory notes	2.479	1.130	1.250	0.707	1.375	0.744	1.250	0.707
66	Interest receivable	2.458	0.898	1.375	0.744	1.750	1.035	1.250	0.707
132	Operate a terminal to a computer system	2.438	1.583	1.375	1.061	1.875	1.642	1.875	1.642
93	Employee withholding report	2.417	0.739	2.000	0.756	1.875	0.835	1.625	1.061
94	FICA report	2.396	0.676	2.000	0.756	1.875	0.835	1.625	1.061
60	Inventory physical count	2.333	0.834	1.125	0.354	1.375	0.744	1.375	0.744
17	Plant (fixed assets) ledger	2.313	0.949	2.125	1.356	1.750	1.165	1.250	0.707
23	Entries to adjust inventory ledger cards	2.292	0.824	1.250	0.707	1.000	0.000	1.250	0.707
31	Entries for bad debts	2.292	0.849	1.500	0.756	1.250	0.707	1.500	1.414
95	Federal unemployment compensation report	2.271	0.676	2.000	0.756	1.875	0.835	1.375	0.744
96	State unemployment compensation report	2.271	0.676	2.000	0.756	1.875	0.835	1.375	0.744
97	State sales and use tax report	2.271	0.736	1.625	0.744	1.875	0.835	1.750	0.886
92	Cash flow statement preparation	2.208	0.898	1.250	0.423	1.375	1.061	1.250	0.707

Table 23 continued.

Task Number	Task Description	Teachers		Small		Medium		Large	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
128	Operate computer	2.208	1.570	1.375	1.061	1.125	0.354	1.414	0.500
91	Statement of changes in financial position	2.188	0.842	1.250	0.463	1.000	0.000	1.250	0.707
30	Entries for depreciation	2.167	0.808	1.500	0.756	1.375	0.744	1.250	0.707
117	Analysis of accounts receivable	2.167	0.952	1.375	0.744	1.500	0.926	1.250	0.463
53	Straight line depreciation	2.104	0.881	1.375	0.744	1.250	0.463	1.500	0.926
115	Balance sheet analysis	2.063	0.998	1.250	0.463	1.500	0.926	1.500	0.926
116	Income statement analysis	2.063	0.998	1.250	0.463	1.500	0.926	1.500	0.926
106	Day's sales uncollected	2.000	1.353	1.000	0.000	1.125	0.354	1.000	0.000
105	Turnover of accounts receivable	1.917	1.007	1.000	0.000	1.125	0.354	1.000	0.000
56	Declining balance depreciation	1.896	0.831	1.375	0.744	1.125	0.354	1.375	0.744
62	FIFO inventory	1.875	0.815	1.000	0.000	1.000	0.000	1.250	0.707
63	LIFO inventory	1.833	0.753	1.000	0.000	1.000	0.000	1.000	0.000
57	Depletion	1.833	0.781	1.000	0.000	1.125	0.354	1.000	0.000
54	Units of production depreciation	1.833	0.834	1.000	0.000	1.125	0.354	1.000	0.000
64	Weighted average inventory	1.813	0.762	1.000	0.000	1.000	0.000	1.250	0.707
65	Specific inventory	1.813	0.790	1.000	0.000	1.125	0.354	1.125	0.354

Table 23 continued.

Task Number	Task Description	Teachers		Small		Medium		Large	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
107	Turnover of merchandise inventory	1.813	0.816	1.000	0.000	1.250	0.707	1.250	0.707
55	Sum-of-the-years digits depreciation	1.792	0.798	1.125	0.354	1.125	0.354	1.000	0.000
118	Dividends per share	1.771	0.805	1.000	0.000	1.250	0.707	1.000	0.000
129	Write programs	1.771	1.207	1.375	1.061	1.000	0.000	1.500	1.414
108	Capital contributions of owners and creditors	1.729	0.818	1.125	0.354	1.000	0.000	1.000	0.000
102	Percentage of increase or decrease	1.708	0.922	1.125	0.354	1.375	0.744	1.250	0.707
37	Opening a set of books	1.708	1.051	1.250	0.463	1.125	0.354	1.000	0.000
130	Initiate and prepare flowcharts	1.708	1.051	1.000	0.000	1.125	0.354	1.250	0.463
113	Earnings per share of common stock	1.667	0.724	1.125	0.354	1.125	0.354	1.000	0.000
114	Price earnings ratio	1.646	0.668	1.125	0.354	1.125	0.354	1.000	0.000
100	Current ratio	1.625	0.815	1.000	0.000	1.125	0.354	1.250	0.707
103	Trend percentages	1.583	0.767	1.125	0.354	1.250	0.707	1.000	0.000
112	Rate of return on common stockholder's equity	1.563	0.649	1.000	0.000	1.125	0.354	1.000	0.000
104	Common size statements	1.542	0.651	1.000	0.000	1.250	0.707	1.000	0.000
110	Times fixed interest charges were earned	1.542	0.743	1.000	0.000	1.000	0.000	1.000	0.000

Table 23 continued.

Task Number	Task Description	Teachers		Small		Medium		Large	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
101	Acid test ratio	1.521	0.652	1.000	0.000	1.000	0.000	1.000	0.000
109	Pledged plant assets to long-term liabilities	1.521	0.714	1.000	0.000	1.000	0.000	1.000	0.000
111	Rate of return on total assets employed	1.479	0.618	1.000	0.000	1.000	0.000	1.000	0.000

Ranking of task means of teachers for performance with
small, medium and large business means

Teachers' responses ranked from the highest task mean to the lowest task mean for performance are shown in Table 24. Employee responses for small, medium and large businesses are shown in additional columns in the table. Small business employees ranked operating ten-key adding machines, operating calculators, working with accounts receivable ledgers, operating telephone equipment, preparing bank deposits, working with general and payroll ledgers higher than teachers. Medium business employees ranked operating ten-key adding machines and telephone equipment higher than teachers. Large business employees ranked operating ten-key adding machines, calculators and telephone equipment higher than teachers. Making bank deposits was also rated higher by large business employees.

Teachers rated the 10 lowest tasks higher than small, medium and large businesses. Most of the tasks were involved with financial statement analysis. Initiating and preparing flowcharts and writing programs were rated low by teachers and employees of all size businesses.

Table 24. Ranking (based on means of teachers) for teachers, small businesses, medium businesses and large businesses on Performance.

Task Number	Task Description	Teachers		Small		Medium		Large	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
119	Operate ten-key adding machine	4.125	0.761	4.250	1.488	4.250	0.707	4.250	1.389
120	Operate calculator	4.042	0.824	4.250	1.488	3.750	1.282	4.875	0.354
48	Checking account	3.896	0.973	3.250	1.907	3.125	1.808	2.750	1.165
32	Entries in ledgers from journals	3.875	0.981	2.250	1.388	2.500	1.690	2.000	1.069
13	Accounts receivable ledger	3.854	0.989	4.250	0.707	2.250	1.753	3.500	1.309
49	Petty cash records	3.667	0.975	2.250	1.389	2.750	1.909	2.625	1.506
122	Operate telephone equipment	3.646	1.148	4.625	0.744	4.000	1.309	4.875	0.354
28	Bank deposits	3.625	1.084	4.125	0.641	3.125	0.639	4.000	0.756
12	General ledger	3.604	1.025	3.750	1.282	2.500	1.690	2.250	1.389
15	Payroll ledger	3.604	1.162	4.000	1.414	2.875	1.642	3.500	2.309
2	Cash receipts journal	3.563	1.029	3.375	1.598	3.125	1.808	3.125	1.885
123	Operate cash register	3.563	1.147	2.875	1.885	2.250	1.753	1.500	1.414
72	Handle time cards	3.479	0.922	3.000	1.773	3.750	1.282	3.750	1.389
42	Add (foot) and balance ledger accounts	3.479	1.031	2.750	1.581	2.000	1.852	1.875	1.246
3	Cash payments journal	3.479	1.052	3.125	1.808	2.875	1.642	2.375	1.598
43	Add (foot), balance and total columns in special journals	3.438	1.050	2.625	1.506	2.000	1.852	2.250	1.389

Table 24 continued.

Task Number	Task Description	Teachers		Small		Medium		Large	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
45	Verify balances of control account with subsidiary ledger	3.438	1.050	2.750	1.909	2.625	1.847	1.875	1.246
16	Accounts or vouchers payable ledger	3.438	1.070	3.500	1.690	2.625	1.847	2.625	1.408
50	Trial balance	3.438	1.219	2.125	1.356	1.875	1.642	1.750	1.035
74	Overtime	3.417	0.942	3.000	1.773	2.750	1.909	3.625	1.303
73	Figures payroll	3.417	0.986	3.875	1.356	2.750	1.909	3.625	1.303
5	Combined cash journal	3.417	1.088	1.500	0.926	2.625	1.768	1.500	0.926
39	Payroll tax records	3.396	1.026	3.875	0.835	3.000	1.414	3.000	1.309
40	Sales tax records	3.375	1.064	1.875	1.246	2.375	1.598	2.250	1.389
51	Post closing trial balance	3.375	1.196	2.125	1.356	1.875	1.642	1.250	0.707
6	Sales journal	3.354	1.021	2.875	1.727	2.250	1.753	2.625	1.506
98	Schedule of accounts receivable	3.333	0.975	3.000	1.512	2.625	1.768	2.500	1.309
99	Schedule of accounts payable	3.333	0.975	3.000	1.512	2.625	1.769	2.125	1.246
8	Purchases journal	3.313	1.014	2.500	1.690	1.750	1.488	1.875	1.246
29	Withholding tax calculations	3.313	1.170	3.750	1.282	2.750	1.669	3.250	1.488
38	Data in ledgers from special journal	3.292	1.166	1.625	1.188	1.500	1.414	1.500	0.926

Table 24 continued.

Task Number	Task Description	Teachers		Small		Medium		Large	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
52	Worksheet	3.292	1.237	2.875	1.356	1.875	1.642	1.625	1.188
44	Rule and balance accounts	3.271	1.267	1.750	1.165	2.250	1.832	2.000	1.195
1	General journal	3.250	1.000	3.750	1.282	2.500	1.690	2.000	1.195
84	Federal withholding tax	3.229	0.994	3.125	1.458	2.625	1.768	3.500	1.195
85	State withholding tax	3.229	0.994	3.125	1.458	2.625	1.768	3.500	1.195
11	Petty cash register	3.229	1.036	1.000	0.000	1.875	1.642	1.250	0.707
125	Operate bookkeeping machine	3.208	1.071	1.852	0.655	1.625	1.408	1.000	0.000
27	Expense accounts	3.208	1.129	2.125	1.356	2.375	1.598	1.250	0.707
4	Check register	3.208	1.184	2.750	1.581	3.125	1.808	1.875	1.246
76	Vacation and holiday pay	3.167	1.078	3.125	1.458	2.375	1.923	3.125	1.458
87	Balance sheet preparation	3.167	1.294	2.250	1.581	1.876	1.642	1.375	0.744
81	FICA taxes	3.146	1.052	3.125	1.458	2.625	1.768	3.750	0.707
35	Record purchase of materials	3.146	1.111	1.875	1.246	1.625	1.408	1.500	0.926
88	Income statement preparation	3.146	1.288	2.750	1.753	1.875	1.642	1.375	0.744
71	Cash discount	3.104	1.096	2.000	1.195	2.375	1.923	1.500	1.414
34	Record closing entries	3.104	1.225	2.625	1.408	2.125	1.642	1.250	0.707
33	Record adjusting entries	3.083	1.217	2.250	1.389	2.125	1.642	2.125	1.246
94	FICA reports	3.083	1.234	2.875	1.458	2.625	1.768	2.125	1.553
93	Employee withholding reports	3.083	1.269	2.875	1.458	2.625	1.768	2.125	1.553

Table 24 continued.

Task Number	Task Description	Teachers		Small		Medium		Large	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
124	Operate check protector	3.083	1.269	3.500	1.604	2.750	1.909	2.625	1.847
36	Record issuance of material	3.063	1.174	2.875	1.246	1.500	1.414	1.000	0.000
75	Shift premiums	3.063	1.174	2.750	1.909	2.375	1.923	2.375	1.598
95	Federal unemployment compensation	3.063	1.192	2.875	1.458	2.625	1.768	1.750	1.389
97	State sales and use tax report	3.063	1.210	2.000	1.195	2.625	1.768	2.375	1.506
121	Operate dictating equipment	3.063	1.210	2.625	1.847	3.125	1.808	1.000	0.000
82	State unemployment taxes	3.042	1.091	3.125	1.458	2.625	1.768	3.750	0.707
83	Federal unemployment taxes	3.042	1.091	3.125	1.458	2.625	1.768	3.500	1.195
14	Notes receivable ledgers	3.021	1.194	2.125	1.553	2.125	1.642	2.125	1.246
96	State unemployment compensation	3.021	1.229	2.875	1.458	2.625	1.768	1.750	1.389
80	Medical and hospitalization plan premium	3.000	1.072	2.625	1.847	2.500	1.690	2.625	1.408
41	Perpetual inventories	3.000	1.149	1.750	1.035	1.750	1.488	1.000	0.000
89	Capital statement preparation	3.000	1.185	2.750	1.753	1.625	1.188	1.250	0.707
77	Bonuses	2.979	1.139	2.875	1.642	2.375	1.923	2.000	1.414
10	Voucher register	2.958	0.967	1.500	1.414	1.875	1.642	1.250	0.707

Table 24 continued.

Task Number	Task Description	Teachers		Small		Medium		Large	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
70	Trade discounts	2.958	1.071	2.125	1.356	2.125	1.808	1.500	1.414
24	Entries for purchase of materials	2.958	1.271	2.375	1.598	2.250	1.753	1.750	1.035
79	Group life insurance premiums	2.896	1.115	2.500	1.690	2.500	1.690	2.375	1.506
60	Inventory physical count	2.896	1.171	1.875	1.356	1.500	0.926	1.500	0.926
22	Closing entries	2.896	1.309	2.125	1.356	1.500	1.414	1.875	1.642
21	Adjusting entries	2.875	1.265	2.000	1.414	2.375	1.923	2.625	1.768
68	Markup	2.854	1.052	1.750	1.165	1.750	1.389	1.000	0.000
69	Markdown	2.854	1.052	1.750	1.165	1.250	0.463	1.000	0.000
18	Materials and stores ledgers	2.854	1.111	2.500	1.690	1.875	1.246	1.250	0.707
19	Journal entries for original set of books	2.854	1.353	2.625	1.598	2.125	1.642	2.750	1.165
26	Entries for correcting	2.833	1.277	2.250	1.389	2.625	1.848	2.875	1.808
86	Workmen's compensation report	2.813	1.104	2.875	1.642	2.625	1.768	3.250	1.489
59	Inventory amount on hand	2.813	1.197	1.500	1.069	1.250	0.707	1.625	0.916
25	Entries for issuance of materials	2.813	1.266	1.875	1.246	1.875	1.642	1.000	0.000
7	Sales returns and allowances journal	2.792	1.129	2.250	1.832	1.875	1.642	1.875	1.246

Table 24 continued.

Task Number	Task Description	Teachers		Small		Medium		Large	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
9	Purchases returns and allowances journal	2.771	1.153	1.500	1.414	1.750	1.488	1.375	1.061
78	Pension and annuity payments	2.750	1.194	2.750	1.581	1.875	1.246	1.750	1.389
67	Interest payable	2.688	1.095	1.875	1.356	1.750	1.488	1.375	0.744
90	Retained earnings statement preparation	2.688	1.257	2.625	1.768	1.250	0.707	1.250	0.707
17	Plant (fixed assets) ledger	2.646	1.158	3.000	1.773	1.875	1.246	1.250	0.707
46	Discount notes	2.646	1.360	1.375	1.061	1.750	1.488	1.000	0.000
66	Interest receivable	2.583	1.088	1.875	1.356	2.250	1.832	1.250	0.707
53	Straight line depreciation	2.583	1.200	2.125	1.356	1.750	1.488	1.500	0.926
37	Opening a set of books	2.583	1.471	1.500	1.069	1.500	1.414	1.000	0.000
61	Perpetual inventory	2.563	1.090	1.500	1.069	1.250	0.707	1.125	0.354
58	Uncollectable accounts	2.563	1.128	2.125	1.356	2.250	1.832	1.875	1.642
23	Entries to adjust inventory ledger cards	2.563	1.270	2.000	1.195	1.000	0.000	1.250	0.707
30	Entries for depreciation	2.563	1.270	2.250	1.389	1.500	1.414	1.250	0.707
47	Work with promissory notes	2.542	1.220	1.875	1.642	1.625	1.408	1.250	0.707
31	Entries for bad debts	2.521	1.203	2.250	1.389	1.500	1.414	1.250	0.707
20	Data for electronic equipment	2.521	1.288	1.750	1.488	3.125	1.808	2.875	1.642
126	Prepare input for automated processing	2.521	1.288	2.500	1.604	3.750	1.282	3.375	1.685

Table 24 continued.

Task Number	Task Description	Teachers		Small		Medium		Large	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
127	Utilize printed output	2.500	1.255	2.125	1.553	3.500	1.604	3.375	1.598
91	Statement of changes in financial position preparation	2.500	1.321	2.250	1.581	1.250	0.707	1.250	0.707
117	Analysis of accounts receivable	2.458	1.202	2.000	1.309	1.750	1.488	1.250	0.707
115	Balance sheet analysis	2.438	1.367	2.000	1.309	1.750	1.488	1.500	0.926
116	Income statement analysis	2.438	1.367	2.000	1.309	1.750	1.488	1.500	0.926
56	Declining balance depreciation	2.396	1.162	2.125	1.356	1.625	1.878	1.500	0.926
92	Cash flow statement preparation	2.396	1.267	2.250	1.581	1.500	1.414	1.250	0.707
55	Sum-of-the-years digits depreciation	2.354	1.176	2.250	1.581	1.625	1.188	1.000	0.000
54	Units of production depreciation	2.333	1.191	1.750	1.165	1.625	1.188	1.000	0.000
131	Use pegboard system	2.250	1.280	1.125	0.354	1.375	1.061	1.000	0.000
57	Depletion	2.188	1.123	1.500	1.069	1.375	0.744	1.000	0.000
62	FIFO inventory	2.125	1.104	1.500	1.069	1.250	0.707	1.250	0.707
63	LIFO inventory	2.083	1.069	1.500	1.069	1.250	0.707	1.000	0.000
118	Dividends per share	2.083	1.182	1.250	0.463	1.375	0.744	1.000	0.000
64	Weighted average inventory	2.042	1.129	1.500	1.069	1.250	0.707	1.250	0.707
132	Operate a terminal to a computer system	2.021	1.211	1.625	1.061	2.375	1.598	1.750	1.389

Table 24 continued.

Task Number	Task Description	Teachers		Small		Medium		Large	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
105	Turnover of accounts receivable	2.000	1.203	1.125	0.354	1.375	0.744	1.000	0.000
65	Specific inventory	1.979	1.082	1.500	1.069	1.250	0.707	1.250	0.707
108	Capital contributions of owners and creditors	1.979	1.229	1.375	1.069	1.250	0.707	1.125	0.354
107	Turnover of merchandise inventory	1.917	1.164	1.125	0.354	1.125	0.354	1.250	0.707
106	Days sales uncollected	1.896	1.171	1.125	0.354	1.375	0.744	1.000	0.000
102	Percentage of increase or decrease	1.875	1.214	1.375	0.744	1.750	1.488	1.250	0.707
113	Earnings per share of common stock	1.833	1.098	1.375	0.744	1.375	0.744	1.000	0.000
128	Operate computer	1.833	1.098	1.500	1.069	1.375	0.744	1.375	1.061
110	Time fixed interest charges were earned	1.813	1.104	1.125	0.354	1.125	0.354	1.000	0.000
103	Trend percentages	1.792	1.166	1.375	0.744	1.250	0.707	1.000	0.000
114	Price earnings ratio	1.792	1.091	1.375	0.744	1.375	0.744	1.000	0.000
130	Initiate and prepare flow charts	1.771	1.057	1.125	0.354	1.250	0.463	1.500	0.926
112	Rate of return on common stockholder's equity	1.771	1.096	1.125	0.354	1.375	0.744	1.000	0.000
100	Current ratio	1.771	1.134	1.125	0.354	1.625	1.408	1.250	0.707
109	Pledged plant assets to long-term liabilities	1.750	1.082	1.125	0.354	1.125	0.354	1.000	0.000

Table 24 continued.

Task Number	Task Description	Teachers		Small		Medium		Large	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
101	Acid test ratio	1.750	1.120	1.125	0.354	1.375	0.744	1.000	0.000
111	Rate of return on total assets employed	1.729	1.086	1.125	0.354	1.125	0.354	1.000	0.000
104	Common size statements	1.688	1.114	1.125	0.354	1.625	1.188	1.000	0.000
129	Write programs	1.688	1.114	1.500	1.069	1.125	0.354	1.250	0.707

Ranking of task means of teachers for importance with
small, medium and large business means

Teachers' responses ranked from the highest task mean to the lowest task mean for importance are shown in Table 25. Employee responses for small, medium and large businesses are shown in additional columns in the table. Small business employees rated making bank deposits higher than teachers. Medium business employees rated all of the 10 highest rated tasks lower than teachers. Large business employees rated operating ten-key adding machines and calculators higher than teachers.

Teachers rated the 10 lowest tasks higher than small, medium and large businesses. All tasks were involved with financial statement analysis.

Table 25 . Ranking (based on means of teachers) for teachers, small businesses, medium businesses and large businesses on Importance.

Task Number	Task Description	Teachers		Small		Medium		Large	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
119	Operate ten-key adding machine	4.333	0.663	3.625	1.685	4.125	0.991	4.500	1.414
120	Operate calculator	4.271	0.765	4.000	1.309	4.000	1.309	5.000	0.000
13	Accounts receivable ledger	4.229	0.805	4.000	0.926	2.375	1.685	3.250	1.165
48	Checking account	4.208	0.898	3.000	1.773	3.125	1.808	2.750	1.282
28	Bank deposits	4.125	0.937	4.250	0.707	3.250	1.909	4.125	0.835
15	Payroll ledger	4.042	1.051	4.000	1.414	3.000	1.512	3.750	1.389
12	General ledger	3.958	0.874	3.625	1.408	2.750	1.753	2.250	1.165
2	Cash receipts journal	3.958	1.071	3.250	1.282	3.250	1.669	2.875	1.727
32	Entries in ledgers from journals	3.938	0.885	2.250	1.389	2.750	1.753	1.875	0.991
49	Petty cash records	3.917	0.942	2.125	1.642	2.500	1.852	2.500	1.414
3	Cash payments journal	3.896	1.134	3.000	1.309	3.250	1.669	2.125	1.458
72	Handle time cards	3.813	0.938	3.500	1.690	3.500	1.414	3.875	1.553
74	Overtime	3.813	0.960	2.625	1.847	2.875	1.808	3.750	1.581
122	Operate telephone equipment	3.813	1.142	4.375	0.518	4.125	1.356	4.875	0.354
73	Figures payroll	3.792	0.967	3.875	1.356	2.875	1.808	3.875	1.553
16	Accounts or vouchers payable ledger	3.771	0.994	3.500	1.309	3.000	1.927	2.625	1.506
50	Trial balance	3.771	1.057	2.250	1.832	1.750	1.389	1.750	1.035

Table 25 continued.

Task Number	Task Description	Teachers		Small		Medium		Large	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
123	Operate cash register	3.771	1.077	1.750	1.389	2.125	1.808	1.750	1.488
42	Add (foot) and balance ledger accounts	3.750	0.978	3.125	1.885	2.375	1.685	1.750	1.035
39	Payroll taxes	3.750	1.042	3.875	0.641	3.375	1.408	3.500	1.690
81	FICA taxes	3.750	1.062	3.500	1.690	2.750	1.669	4.125	1.126
5	Combined cash journal	3.750	1.101	2.125	1.246	2.750	1.669	1.625	0.916
8	Purchases journal	3.729	1.026	2.500	1.309	2.250	1.581	1.875	1.246
43	Add (foot), balance and total columns in special journals	3.708	0.874	3.000	1.773	2.250	1.581	2.125	1.246
45	Verify balances of control account with subsidiary ledger	3.708	0.898	2.625	1.847	2.875	2.031	1.750	1.035
84	Federal withholding tax	3.708	1.051	3.500	1.690	2.750	1.669	3.875	1.553
85	State withholding tax	3.708	1.051	3.500	1.690	2.750	1.669	3.875	1.553
6	Sales journal	3.667	0.996	3.125	1.458	2.750	1.669	2.625	1.506
51	Post closing trial balance	3.667	1.059	2.250	1.832	1.750	1.389	1.500	0.926
4	Check register	3.667	1.243	2.625	1.408	3.000	1.512	1.625	0.916
52	Worksheet	3.646	1.062	2.875	1.642	1.750	1.389	1.750	1.035
1	General journal	3.625	1.084	3.375	1.188	2.750	1.669	1.750	0.886
83	Federal unemployment	3.625	1.123	3.500	1.690	2.750	1.669	4.125	1.126
29	Withholding tax calculation	3.625	1.160	3.750	1.282	3.375	1.768	3.625	1.685

Table 25 continued.

Task Number	Task Description	Teachers		Small		Medium		Large	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
40	Sales tax records	3.583	1.127	2.000	1.414	2.625	1.598	2.625	1.506
82	State unemployment	3.583	1.145	3.500	1.690	2.750	1.669	4.125	1.126
98	Schedule of accounts receivable	3.563	1.109	3.000	1.773	2.250	1.488	2.625	1.408
87	Balance sheet preparation	3.542	1.220	1.750	1.389	2.000	1.414	1.750	1.035
88	Income statement preparation	3.542	1.220	2.375	1.506	2.000	1.414	1.750	1.035
99	Schedule of accounts payable	3.521	1.130	2.750	1.581	2.250	1.488	2.250	1.389
11	Petty cash register	3.479	1.052	1.625	0.916	2.375	1.685	1.500	0.926
76	Vacation and holiday pay	3.479	1.130	3.000	1.773	2.500	1.852	3.250	1.753
38	Data in ledgers from special journal	3.438	1.050	2.000	1.414	2.125	1.553	1.750	1.035
86	Workmen's compensation	3.438	1.201	3.000	1.773	2.750	1.669	3.875	1.553
44	Rule and balance accounts	3.396	1.284	1.500	1.414	2.625	1.996	2.125	1.246
75	Shift premiums	3.375	1.214	1.750	1.488	2.500	1.852	2.875	1.808
35	Record purchase of materials	3.354	1.041	2.000	1.414	2.125	1.553	1.500	0.926
89	Capital statement preparation	3.354	1.211	1.625	1.188	1.500	0.756	1.500	0.926
77	Bonuses	3.313	1.170	2.500	1.690	2.500	1.852	2.625	1.599
34	Record closing entries	3.271	1.086	2.625	1.408	2.250	1.581	1.500	0.926

Table 25 continued.

Task Number	Task Description	Teachers		Small		Medium		Large	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
27	Expense accounts	3.271	1.144	2.375	1.506	2.875	1.642	1.500	0.926
36	Record issuance of materials	3.271	1.144	1.750	1.389	2.125	1.553	1.250	0.707
94	FICA reports	3.271	1.162	3.125	1.356	2.500	1.852	2.375	1.923
124	Operate check protector	3.271	1.198	3.750	1.753	3.000	1.927	2.875	1.727
97	State sales and use tax report	3.250	1.139	2.275	1.506	2.500	1.852	2.625	1.847
93	Employee withholding report	3.250	1.194	3.125	1.356	2.500	1.852	2.375	1.923
71	Cash discount	3.229	1.096	1.875	1.246	2.000	1.852	1.375	1.062
80	Medical and hospitalization plan premiums	3.229	1.115	2.750	1.581	2.625	1.598	2.875	1.808
95	Federal unemployment compensation	3.229	1.134	3.125	1.356	2.500	1.852	2.000	1.852
24	Entries for purchase of materials	3.208	1.220	2.500	1.690	2.625	1.768	1.875	1.246
33	Record adjusting entries	3.188	1.142	2.250	1.389	2.250	1.581	2.000	1.195
96	State unemployment compensation	3.188	1.142	3.125	1.356	2.500	1.852	2.000	1.852
125	Operate bookkeeping machine	3.167	1.038	1.875	1.642	2.125	1.808	1.250	0.707
70	Trade discounts	3.104	1.057	1.625	1.188	1.625	1.408	1.375	1.061
79	Group life insurance premiums	3.104	1.189	2.875	1.642	2.625	1.598	2.750	1.753

Table 25 continued.

Task Number	Task Description	Teachers		Small		Medium		Large	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
14	Notes receivable ledger	3.104	1.225	2.250	1.389	2.250	1.581	1.875	0.991
19	Journal entries for original set of books	3.104	1.356	2.500	1.414	2.500	1.604	2.875	1.458
22	Closing entries	3.063	1.343	2.250	1.753	2.000	1.604	2.125	1.642
60	Inventory physical count	3.042	1.031	1.375	1.061	1.500	1.069	2.125	1.642
59	Inventory amount on hand	3.042	1.091	1.000	0.000	1.375	1.061	2.000	1.195
90	Retained earnings statement preparation	3.042	1.129	1.625	1.188	1.500	0.756	1.500	0.926
26	Entries for correcting	3.021	1.139	2.125	1.356	3.250	1.669	2.750	1.753
68	Markup	3.021	1.139	1.375	1.061	1.625	1.408	1.375	1.061
69	Markdown	3.021	1.139	1.375	1.061	1.625	1.408	1.375	1.061
78	Pension and annuity payments	3.021	1.296	2.625	1.847	2.000	1.195	2.250	1.581
21	Adjusting entries	3.000	1.288	2.125	1.356	2.875	1.808	2.875	1.642
7	Sales returns and allowances journal	2.979	1.082	2.750	1.581	2.375	1.685	1.625	0.916
9	Purchase returns and allowances journal	2.958	1.091	1.875	1.246	2.250	1.581	1.250	0.707
25	Entries for issuance of materials	2.938	1.137	1.375	1.061	2.375	1.685	1.250	0.707
121	Operate dictating equipment	2.938	1.210	2.250	1.753	3.375	1.768	1.250	0.707

Table 25 continued.

Task Number	Task Description	Teachers		Small		Medium		Large	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
41	Perpetual inventories	2.917	1.108	1.375	1.061	2.250	1.581	1.250	0.707
18	Materials and stores ledger	2.917	1.164	2.250	1.389	2.250	1.581	1.500	0.926
10	Voucher register	2.896	0.973	2.375	1.598	2.375	1.685	1.500	0.926
67	Interest payable	2.875	1.123	1.875	1.642	1.625	1.408	1.750	1.165
37	Opening a set of books	2.875	1.409	1.750	1.389	2.125	1.553	1.250	0.707
53	Straight line depreciation	2.854	1.203	1.875	1.642	2.000	1.604	1.625	0.916
91	Statement of changes in financial position preparation	2.813	1.249	1.750	1.389	1.750	0.886	1.500	0.926
66	Interest receivable	2.771	1.134	1.875	1.642	1.625	1.408	1.625	1.188
117	Analysis of accounts receivable	2.771	1.341	1.750	1.389	2.000	1.604	1.500	0.926
30	Entries for depreciation	2.750	1.194	2.125	1.553	2.000	1.604	1.500	0.926
127	Utilize printed output	2.750	1.280	2.250	1.753	3.250	1.909	3.625	1.768
61	Perpetual inventory	2.729	1.086	1.000	0.000	1.375	1.061	1.500	1.069
58	Uncollectable accounts	2.708	1.129	2.000	1.414	2.500	1.690	1.875	1.642
126	Prepare input for automated processing	2.708	1.148	2.250	1.753	3.750	1.753	3.500	1.690
31	Entries for bad debts	2.688	1.114	2.125	1.553	2.000	1.604	1.500	0.926
115	Balance sheet analysis	2.688	1.475	1.750	1.389	1.875	1.356	1.750	1.035
116	Income statement analysis	2.688	1.475	1.750	1.389	1.875	1.356	1.750	1.035

Table 25 continued.

Task Number	Task Description	Teachers		Small		Medium		Large	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
20	Data for electronic equip- ment	2.667	1.243	2.125	1.246	3.125	1.808	2.625	1.598
17	Plant (fixed assets) ledger	2.646	1.194	2.750	1.581	2.125	1.553	1.500	0.926
46	Discount notes	2.625	1.299	1.375	1.061	1.750	1.389	1.250	0.707
92	Cash flow statement preparation	2.604	1.144	1.750	1.389	1.750	0.886	1.500	0.926
23	Entries to adjust inventory ledger cards	2.604	1.198	1.625	1.188	2.000	1.604	1.500	0.926
47	Work with promissory notes	2.563	1.270	1.750	1.389	1.750	1.389	1.500	0.926
56	Declining balance deprec- iation	2.479	1.130	1.875	1.642	1.500	1.069	1.625	0.916
55	Sum-of-the-years digits depreciation	2.458	1.166	1.875	1.642	1.500	1.069	1.375	0.744
54	Units of production depreciation	2.438	1.165	1.375	1.061	1.500	1.069	1.375	0.744
118	Dividends per share	2.271	1.144	1.000	0.000	1.500	1.069	1.250	0.707
131	Use pegboard system	2.229	1.134	1.000	0.000	1.250	0.707	1.000	0.000
57	Depletion	2.208	1.031	1.375	1.061	1.500	1.069	1.250	0.707
62	FIFO inventory	2.188	1.179	1.000	0.000	1.375	1.061	1.625	1.188
132	Operate a terminal to a computer system	2.188	1.197	1.250	0.707	2.375	1.598	1.750	1.488
63	LIFO inventory	2.104	1.134	1.000	0.000	1.375	1.061	1.375	1.061

Table 25 continued.

Task Number	Task Description	Teachers		Small		Medium		Large	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
64	Weighted average inventory	2.104	1.153	1.000	0.000	1.375	1.061	1.625	1.188
65	Specific inventory	2.063	1.192	1.000	0.000	1.375	1.061	1.625	1.188
128	Operate computer	2.000	1.092	1.500	1.414	1.250	0.707	1.500	1.414
107	Turnover of merchandise inventory	2.000	1.111	1.000	0.000	1.500	0.926	1.250	0.707
105	Turnover of accounts receivable	1.979	1.082	1.000	0.000	1.625	0.916	1.000	0.000
108	Capital contributions of owners and creditors	1.958	1.166	1.250	0.707	1.500	0.926	1.000	0.000
106	Day's sales uncollected	1.917	1.069	1.000	0.000	1.375	0.744	1.000	0.000
130	Initiate and prepare flowcharts	1.917	1.088	1.000	0.000	1.500	0.926	1.500	0.926
129	Write programs	1.917	1.108	1.500	1.414	1.250	0.707	1.250	0.707
113	Earnings per share of common stock	1.875	1.044	1.250	0.707	1.250	0.707	1.000	0.000
102	Percentage of increase or decrease	1.854	1.091	1.250	0.707	1.625	0.916	1.250	0.707
112	Rate of return on common stockholder's equity	1.813	0.960	1.000	0.000	1.250	0.707	1.000	0.000
100	Current ratio	1.792	1.010	1.000	0.000	1.500	0.756	1.250	0.707
103	Trend percentages	1.792	1.010	1.250	0.707	1.375	0.744	1.000	0.000
110	Times fixed interest charges were earned	1.771	0.951	1.000	0.000	2.500	0.707	1.000	0.000

Table 25 continued.

Task Number	Task Description	Teachers		Small		Medium		Large	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
111	Rate of return on total assets employed	1.771	0.973	1.000	0.000	1.250	0.707	1.000	0.000
101	Acid test ratio	1.771	0.994	1.000	0.000	1.375	0.744	1.000	0.000
114	Price earnings ratio	1.750	0.911	1.250	0.707	1.250	0.707	1.000	0.000
109	Pledged plant assets to long-term liabilities	1.750	0.957	1.000	0.000	1.250	0.707	1.000	0.000
104	Common size statements	1.729	0.962	1.000	0.000	1.375	0.744	1.000	0.000

Higher mean tables

A comparison of the number of tasks where businesses had a higher mean than teachers and tasks where teachers had higher means than businesses for frequency, performance and importance are shown in Tables 26, 27 and 28. Each table shows the breakdown for sizes of business as well as responses for all businesses combined. Asterisks (*) indicate those tasks that showed significant differences at the .05 level.

Most tasks in all three tables show teachers with higher task means than employees of businesses. There are very few tasks that were significantly different where businesses have higher means than employees of businesses.

Table 26. Number of tasks where mean is higher for Frequency--Significant tasks indicated by *

All Businesses		Small Businesses		Medium Businesses		Large Businesses	
Employees	Teachers	Employees	Teachers	Employees	Teachers	Employees	Teachers
0*	106*	0*	84*	0*	83*	0*	81*
3	22	5	43	4	45	13	38

Table 27. Number of tasks where mean is higher for Performance--Significant tasks indicated by *

All Businesses		Small Businesses		Medium Businesses		Large Businesses	
Employees	Teachers	Employees	Teachers	Employees	Teachers	Employees	Teachers
1*	88*	0*	42*	2*	39*	2*	78*
9	34	22	68	6	85	16	36

Table 28. Number of tasks where mean is higher for Importance--Significant tasks indicated by *

All Businesses		Small Businesses		Medium Businesses		Large Businesses	
Employees	Teachers	Employees	Teachers	Employees	Teachers	Employees	Teachers
1*	97*	1*	42*	2*	50*	2*	85*
3	31	6	83	6	74	11	34

Summary

The results of this study were reported in this chapter as two major divisions: the analysis of variance and the descriptive question analysis.

A two-way analysis of variance was performed for each of the 132 tasks listed on the questionnaire using business-teachers by frequency, performance and importance. On those tasks where a significant difference was found in the main effects and/or the interactions further analysis of variance tests were completed. One-way analysis of variance tests were performed on 121 tasks using business-teachers and frequency; business-teachers and performance; and business-teachers and importance.

A two-way analysis of variance was performed for each of the 132 tasks listed on the questionnaire using teachers-size of business by frequency, performance and importance. On those tasks where a significant difference was found in the main effects and/or the interactions further analysis of variance tests were completed. One-way analysis of variance tests were performed on 126 tasks using small business-teachers and frequency; small business-teachers and performance; small business-teachers and importance; medium business-teachers and frequency; medium business-teachers and performance; medium business-teachers and importance; large business-teachers and frequency, large

business-teachers and performance; and large business-teachers and importance.

A descriptive question analysis was completed for all questions. The mean and standard deviation were calculated for teachers, all businesses, small businesses, medium businesses and large businesses. Tables were created ranking the tasks from high to low using business means for frequency, performance and importance with matching teacher means in separate columns. Tables were also created ranking the tasks from high to low using teacher means for frequency, performance and importance with matching business means in separate columns. Tables were created ranking the tasks from high to low using teacher means for frequency, performance and importance with matching small, medium and large business means in separate columns. Tables were created showing the number of means for frequency, performance and importance that were higher by category of all business and teachers; small businesses and teachers; medium businesses and teachers; and large businesses and teachers.

Teachers and entry-level employees did not agree on a great number of tasks in all categories for frequency, performance and importance. In most cases, teachers rated tasks higher than entry-level employees for frequency, performance and importance.

Chapter V will summarize and review the findings in this chapter. Conclusions, recommendations and implications will also be given in Chapter V.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

The purpose of this study was to compare the book-keeping and/or accounting tasks being performed by entry-level workers with tasks being taught in Utah secondary schools. Questionnaires listing bookkeeping and/or accounting tasks were distributed to entry-level book-keeping and/or accounting workers in 24 randomly selected businesses across three size categories. Similar questionnaires were mailed to bookkeeping and/or accounting teachers in Utah secondary schools. This chapter is divided into three main sections: Summary of data collected, conclusions and recommendations.

SummaryThe problem

Industry requirements for entry-level bookkeeping and/or accounting workers in the State of Utah are not available. The content of the bookkeeping and/or accounting classes in secondary schools has not kept pace with the changing needs of industry. To develop and revise educational programs for entry-level bookkeeping and/or accounting

jobs without the knowledge of job requirements leaves the educational community open for criticism from the taxpayer and from the participants of these programs.

This study was conducted to compare perceptions of bookkeeping and/or accounting teachers concerning tasks being taught in Utah secondary schools with tasks being performed by entry-level bookkeeping and/or accounting workers in selected businesses in Utah.

The respondents

Reports generated by the Utah Vocational Information System were used in creating a list of all bookkeeping and/or accounting teachers in the public secondary schools of Utah. The State Specialist for Business and Office Occupations provided additional information to verify the accuracy of the list. A list of teacher's names was compiled representing approximately 87 public high schools in the State of Utah. Questionnaires were sent to every teacher on the list.

Questionnaires were also distributed to entry-level bookkeeping and/or accounting workers in selected Utah businesses. A stratified random sample was taken of Utah businesses. A sample of 24 businesses in the Wasatch front area of the State of Utah was taken. The businesses were stratified by Standard Industrial Classification and three size categories according to number of employees. The size categories were 1-19, 20-99 and over 100 employees.

Size was considered an important factor in comparing with teacher's responses. The Standard Industrial Classification was used to provide diversity in the types of businesses in the survey but was not used in statistical comparisons. The sample was randomly selected by the Department of Employment Security, State of Utah and included a business in each Standard Industrial Classification and each size grouping. Alternates were also selected in each category in case a business chose not to participate in the study or other complications arose. Three alternates were used because three of the firms chose not to participate because of time problems.

The questionnaires

A questionnaire listing bookkeeping and/or accounting tasks was used in the collection of data from both teachers and businesses. A list of bookkeeping and/or accounting tasks was created from current textbooks and lists of tasks developed in current research efforts. A six member panel of experts consisting of teachers and practicing accountants was chosen to revise the list of tasks for completeness. Additional tasks were added if recommended by anyone on the panel. This list of tasks was used to create the questionnaire that was distributed to teachers and businesses.

The questionnaire required three responses for each task listed. The three responses were frequency, performance and importance. When the teachers responded to

frequency and performance they were asked to do so using their best judgment as to entry-level employment. Frequency related to how often the task was performed while performance involved the degree of supervision required of a person completing those tasks. Entry-level bookkeeping and/or accounting employees were asked to respond to frequency and performance using facts relating to their position. When teachers and workers responded to importance they were basing their answers on how important each task was to the securing and maintaining of an entry-level bookkeeping and/or accounting position.

Before the final copy of the questionnaire was adopted, a pilot study was undertaken. Teachers and entry-level workers were asked to complete the questionnaire and to offer criticism and suggestions on the structure of the questionnaire. Their suggestions and criticisms were considered in the final design of the questionnaire.

Data collection

Questionnaires and cover letters were mailed to the 100 teachers in early January. Each teacher was requested to complete the questionnaire if they were teaching bookkeeping and/or accounting classes in that school year. The teachers who were not teaching bookkeeping and/or accounting that year were requested to give the questionnaire to the teacher who was or, to return the questionnaire.

Follow-up letters were mailed in February. Additional telephone contacts were made to determine reasons for questionnaires not being returned. Of the 100 questionnaires mailed, 77 were returned. Of these 48 were usable, 7 were partially completed and 22 indicated they were not teaching bookkeeping and/or accounting. No responses were received from 23 teachers. Attempts to contact them by telephone were unsuccessful in receiving completed questionnaires from them. The most common comment was that they just did not have the time to complete the questionnaire.

Bookkeeping and/or accounting supervisors were contacted and interviewed in each of the selected businesses. Entry-level employees performing bookkeeping and/or accounting tasks were identified and questionnaires were distributed to them. The researcher was available for questions as the employees completed the questionnaire. In firms where more than one employee was performing entry-level bookkeeping and/or accounting functions, a summary questionnaire was created from data supplied by the separate questionnaires to show a profile of the business as a whole. All 24 businesses were contacted and usable questionnaires were secured from all businesses.

Analysis of data

A two-way analysis of variance was performed on each task utilizing the Statistical Package for the Social

Sciences. A one-way analysis of variance was also used when further treatment was necessary on individual tasks. Means and standard deviations were calculated for teachers, all businesses, small businesses, medium businesses and large businesses. Tasks were ranked by mean from high to low for all businesses and matched with means of teachers responses. Tasks were also ranked by mean from high to low for teachers and matched with means from employees of small, medium and large businesses.

Findings

Hypotheses

For each task listed on the questionnaire, the following null hypotheses were tested:

1. There will be no significant difference between opinions of teachers and entry-level employees on each individual task when considering frequency, performance and importance.

2. There will be no significant difference between opinions of teachers and entry-level employees on each individual task when considering frequency, performance and importance by size of business.

Findings for all businesses

The researcher failed to reject the null hypothesis "there will be no significant difference between opinions of teachers and entry-level employees on each individual

task when considering frequency, performance and importance" for most of the tasks in the following categories: payroll activities; data processing activities and tasks involved with initiation and preparation of data for further processing. The researcher failed to reject the null hypothesis for 9 tasks.

On all tasks where the null hypothesis of no significant difference was rejected, further analysis of variance tests were performed. A one-way analysis of variance was performed to test the following three null hypotheses:

1. There will be no significant difference between opinions of teachers and entry-level employees on each individual task when considering frequency.

2. There will be no significant difference between opinions of teachers and entry-level employees on each individual task when considering performance.

3. There will be no significant difference between opinions of teachers and entry-level employees on each individual task when considering importance.

Teachers-employees and frequency

There were significant differences between the opinions of teachers and entry-level employees when considering frequency for journals maintained; ledgers maintained; initiate and prepare; record(post); maintain, analyze or do; working papers used; depreciation; inventories; business mathematical calculations; payroll;

statements; financial statement analysis; operate equipment and perform data processing activities.

Teachers-employees and performance

There were significant differences between the opinions of teachers and entry-level employees when considering performance for record(post); maintain, analyze or do; working papers used; depreciation; inventories; business mathematical calculations; statements; financial statement analysis and operate equipment. Teachers and employees did not disagree on most payroll activities and data processing activities.

Teachers-employees and importance

There were significant differences between the opinions of teachers and entry-level employees when considering importance for journals maintained; ledgers maintained; record(post); maintain, analyze or do; working papers used; depreciation; inventories; business mathematics calculations; statements; tax reports; financial statement analysis and perform data processing activities. Teachers and employees did not disagree when considering most payroll tasks and tasks involving operation of equipment.

Findings for businesses by sizes

The researcher failed to reject the null hypothesis "there will be no significant difference between opinions

of teachers and entry-level employees on each individual task when considering frequency, performance and importance by size of business" for most of the tasks involved with initiating and preparing entries in an original set of books, initiating or preparing data for correcting, three payroll activities and operating a check protector.

On all tasks where the null hypothesis of no significant difference was rejected, further analysis of variance tests were performed.

Teachers-employees and frequency for small business

There were significant differences between the opinions of teachers and entry-level employees in the categories of journals maintained; ledgers maintained; initiate and prepare; maintain, analyze or do; working papers used; depreciation; inventories; business mathematics calculations; statements; financial statement analysis and operate equipment. Teachers and entry-level employees did not disagree on the categories of record(post), payroll and perform data processing activities.

Teachers-employees and frequency by medium business

There were significant differences between the opinions of teachers and entry-level employees in the categories of journals maintained; ledgers maintained; record(post); working papers used; depreciation; inventories; business mathematics calculations; payroll and statements. Teachers

and entry-level employees did not disagree on the preparation of payroll tax reports, operating equipment and data processing activities. They did not disagree on basic analysis tools for financial statement analysis but disagreement on the more complex analytical tools was evident.

Teachers-employees and frequency by large business

There were significant differences between the opinions of teachers and entry-level employees in the categories of journals maintained; working papers used; maintain, analyze or do; depreciation; inventories; business mathematics calculations; statements; tax reports and financial statement analysis. Teachers and entry-level employees did not disagree on most of the tasks relating to payroll preparation and the performing of data processing activities.

Teachers-employees and performance by small business

There were significant differences between the opinions of teachers and entry-level employees in the categories of working papers used; inventories; business mathematical calculations and preparing statements. Teachers and entry-level employees did not disagree on the categories of journals maintained; ledgers maintained; initiate or prepare; record (post); maintain, analyze or do; payroll calculations; financial statement analysis; operate equipment and perform data processing activities.

Teachers-employees and performance by medium business

There appeared to be little difference between the opinions of teachers and entry-level employees when considering performance in medium businesses in all categories. There were some individual tasks where significant differences were found in the areas of journals, working papers, inventory calculations, business mathematical calculations and the preparation of statements.

Teachers-employees and performance by large business

There were significant differences between the opinions of teachers and entry-level employees in the categories of journals maintained; record(post); maintain, analyze or do; working papers used; depreciation; inventories; business mathematical calculations; statements prepared and operating equipment. Teachers and entry-level employees did not disagree on most tasks concerning payroll, financial statement analysis and performing data processing activities.

Teachers-employees and importance by small business

There were significant differences between the opinions of teachers and entry-level employees in the categories of journals maintained; record(post); maintain, analyze or do; working papers used; and business mathematical calculations. Teachers and entry-level employees did not disagree on the categories of ledgers maintained; initiate or prepare; depreciation; payroll; statements; financial

statement analysis; operate equipment and perform data processing activities.

Teachers-employees and importance by medium business

There were significant differences between the opinions of teachers and entry-level employees in the categories of record(post); working papers used; depreciation; business mathematical calculations and statements prepared. Teachers and entry-level employees did not disagree on most tasks in the categories of journals maintained; ledgers maintained; initiate or prepare; maintain, analyze or do; inventory; payroll; financial statement analysis; operate equipment; and perform data processing activities.

Teachers-employees and importance by large business

There were significant differences between the opinions of teachers and entry-level employees in the categories of journals maintained; ledgers maintained; initiate or prepare; record(post); maintain, analyze or do; working papers used; depreciation; business mathematical calculations; statements; financial statement analysis and operate equipment. Teachers and entry-level employees did not disagree on most tasks in the categories of inventory; payroll and perform data processing activities.

Descriptive question analysis

This section will summarize the tables ranking the means of teachers responses and employee responses as a

whole and employees in the different sizes of businesses. The ten highest rated tasks and the ten lowest rated tasks were considered.

Rankings of task means of businesses for frequency

Operating telephone equipment, calculators and ten-key adding machines were the highest rated task means for employees. Other tasks rated in the highest 10 were checking account maintenance, payroll preparation, working with cash receipts journals and accounts receivable ledgers.

The lowest rated tasks were involved with financial statement analysis, depletion and LIFO inventory calculations.

Ranking of task means of businesses for performance

Operating telephone equipment, calculators and ten-key adding machines were the highest rated task means for employees. Other tasks rated in the highest 10 were figuring bank deposits, tasks involving payroll preparation and maintaining an accounts receivable ledger.

The lowest rated tasks were involved with financial statement analysis, using pegboard systems and calculating LIFO inventories.

Ranking of task means of businesses for importance

Operating telephone equipment, calculators and ten-key adding machines were the highest rated tasks. Other tasks in the highest 10 were figuring bank deposits, and tasks involving payroll preparation.

The lowest rated tasks were involved with financial statement analysis and using pegboard systems.

Ranking of task means of teachers for frequency

Operating ten-key adding machines, calculators, telephone equipment and cash registers were rated in the highest 10 tasks. Other tasks were maintaining checking accounts, working with cash payments and cash receipts journals, accounts receivable ledgers and petty cash records.

All of the 10 lowest rated tasks were involved with financial statement analysis.

Ranking of task means of teachers for performance

Operating adding machines, calculators and telephone equipment were among the highest 10 rated tasks. Other tasks involved checking accounts, working with ledgers and working with petty cash records.

Most of the 10 lowest rated tasks were involved with financial statement analysis. Preparing flowcharts and writing programs were also rated low.

Ranking of task means of teachers for importance

Operating ten-key adding machines and calculators were the highest rated tasks. Other tasks rated high were involved with working with ledgers, checking accounts, cash receipts journals and petty cash records.

All of the 10 lowest rated tasks were involved with financial statement analysis.

Ranking of task means of teachers for frequency with small, medium and large business means

Most tasks were rated higher by teachers than for each category of business. Small business employees ranked preparing bank deposits and operating telephone equipment higher than teachers. Medium business employees ranked operating telephone equipment higher than teachers. Large business employees ranked operating calculators, making bank deposits and operating telephone equipment higher than teachers.

All of the 10 tasks rated lowest were involved with financial statement analysis for all teachers and sizes of businesses.

Ranking of task means of teachers for performance with small, medium and large business means

Most tasks were rated higher by teachers than for each category of business. Small business employees ranked operating ten-key adding machines, operating calculators, working with accounts receivable ledgers, operating telephone equipment, preparing bank deposits, working with general and payroll ledgers higher than teachers. Medium business employees ranked operating ten-key adding machines and telephone equipment higher than teachers. Large business employees ranked operating ten-key adding machines, calculators and telephone equipment higher than teachers.

Making bank deposits was also rated higher by large business employees.

Most of the tasks rated low by all groups were involved with financial statement analysis. Preparing flowcharts and writing programs were also rated low.

Ranking of task means of teachers for importance with small, medium and large business means

Most tasks were rated higher by teachers than for each category of business. Small business employees rated making bank deposits higher than teachers. Medium business employees rated all of the 10 highest rated tasks lower than teachers. Large business employees rated operating ten-key adding machines and calculators higher than teachers.

All tasks rated as the 10 lowest were involved with the analysis of financial statements.

Higher mean tables

Most tasks in all three tables show teachers with higher task means than employees of businesses. There were very few tasks that were significantly different where businesses had higher means than employees of businesses.

Conclusions

The following conclusions were drawn from the analysis of variance section of the study:

Frequency

1. Teachers and entry-level employees do not agree on many categories of tasks when considering frequency. In most cases, teachers rate the tasks higher than do entry-level employees. The task categories they do not agree on are: journals maintained; ledgers maintained; initiate and prepare; record(post); maintain, analyze or do; working papers used; depreciation; inventory; business mathematics calculations; payroll; statements; financial statement analysis; operate equipment and perform data processing activities. Entry-level business employees rated the use of the telephone higher than teachers.

2. Teachers and entry-level employees of small businesses do not agree on many categories of tasks when considering frequency. Teachers rate tasks higher than do entry-level employees. The task categories they do not agree on are: journals maintained; ledgers maintained; initiate and prepare; maintain, analyze or do; working papers; depreciation; inventories; business mathematical calculations; statements; financial statement analysis and operate equipment. Teachers and entry-level employees did not disagree on the categories of record(post), payroll and perform data processing activities.

3. Teachers and entry-level employees of medium businesses do not agree on many categories of tasks when considering frequency. Teachers rate tasks higher than

do entry-level employees. The task categories they do not agree on are: journals maintained; ledgers maintained; record(post); working papers; depreciation; inventories; business mathematical calculations; payroll and statements. Teachers and entry-level employees did not disagree on the categories of preparation of payroll tax reports, operating equipment and data processing activities.

4. Teachers and entry-level employees of large businesses do not agree on many categories of tasks when considering frequency. Teachers rate tasks higher than do entry-level employees. The task categories they do not agree on are: journals maintained; working papers; maintain, analyze or do; depreciation; inventories; business mathematical calculations; statements; tax reports and financial statement analysis. Teachers and entry-level employees did not disagree on most of the tasks relating to payroll preparation and the performing of data processing activities.

Performance

1. Teachers and entry-level employees do not agree on many categories of tasks when considering performance. In most cases, teachers rate the tasks higher than do entry-level employees. The task categories they do not agree on are: record(post); maintain, analyze or do; working papers

used; depreciation; inventories; business mathematical calculations; statements; financial statement analysis and operate equipment. Teachers and entry-level employees did not disagree on most payroll activities and data processing activities.

2. Teachers and entry-level employees of small businesses disagreed on the categories of working papers; inventories; business mathematical calculations and preparing statements. They did not disagree on the categories of journals maintained; ledgers maintained; initiate or prepare; record(post); maintain, analyze or do; payroll calculations; financial statement analysis; operate equipment and perform data processing activities. In most cases, teachers rated tasks higher than entry-level employees.

3. Teachers and entry-level employees of medium businesses did not disagree on most categories of tasks when considering performance. There were some differences involving some journals, working papers, inventory calculations, business mathematical calculations and the preparation of statements. In most cases, teachers rated tasks higher than entry-level employees.

4. Teachers and entry-level employees of large businesses disagreed on the categories of journals maintained; record(post); maintain, analyze or do; working papers used; depreciation; inventories; business mathematical

calculations; statements prepared and operating equipment. Teachers and entry-level employees did not disagree on most tasks involving payroll, financial statement analysis and performing data processing activities. In most cases, teachers rated tasks higher than entry-level employees.

Importance

1. Teachers and entry-level employees do not agree on many categories of tasks when considering importance. The task categories they do not agree on are: journals maintained; ledgers maintained; record(post); maintain, analyze or do; working papers; depreciation; inventories; business mathematical calculations; statements; tax reports; financial statement analysis and perform data processing activities. They do not disagree when considering most payroll tasks and tasks involving operation of equipment.

2. Teachers and entry-level employees of small businesses disagreed on the categories of journals maintained; record(post); maintain, analyze or do; working papers used; and business mathematical calculations. They did not disagree in the categories of ledgers maintained; initiate or prepare; depreciation; payroll; statements; financial statement analysis; operate equipment and perform data processing activities on most tasks. In most cases, teachers rated tasks higher than entry-level employees.

3. Teachers and entry-level employees of medium businesses disagreed on the categories of record(post); working papers used; depreciation; business mathematical calculations and statements prepared. They did not disagree on the categories of journals maintained; ledgers maintained; initiate or prepare; maintain, analyze or do; inventories; payroll; financial statement analysis; operate equipment; and perform data processing activities. In most cases, teachers rated tasks higher than entry-level employees.

4. Teachers and entry-level employees of large businesses disagreed on the categories of journals maintained; ledgers maintained; initiate or prepare; record(post); maintain, analyze or do; working papers used; depreciation; business mathematical calculations; statements; financial statement analysis and operate equipment. They did not disagree on the categories of inventory; payroll and perform data processing activities. In most cases, teachers rated tasks higher than entry-level employees.

The following conclusions were drawn from the ranking of task means:

Frequency

1. Teachers and entry-level employees ranked operating telephone equipment, calculators and ten-key adding machines high in frequency. They also agreed on working with checking accounts and payroll preparation tasks. Cash receipts journals and accounts receivable

ledgers were listed high by both groups. Working petty cash records was rated high by teachers but businesses rated this task much lower.

2. Both groups rated tasks involved with financial statement analysis low. Calculating depletion and LIFO inventories were rated low by businesses but were not in the lowest 10 for teachers.

3. There did not seem to be many differences between the tasks being performed by small, medium and large businesses.

Performance

1. Teachers and entry-level employees ranked operating telephone equipment, calculators and ten-key adding machines high on performance. Other tasks rated high by both groups were those involving checking accounts and some ledgers. Businesses rated payroll calculation tasks higher while teachers rated working with various ledgers as more important. Teachers also rated petty cash in the highest 10 tasks and entry-level employees ranked this much lower.

2. Both groups rated tasks involved with financial statement analysis low. Businesses rated using pegboard systems and calculating LIFO inventories very low while teachers rated preparing flowcharts and writing programs low.

3. There did not seem to be many differences between the tasks being performed by small, medium and large businesses.

Importance

1. Teachers and entry-level employees ranked operating ten-key adding machines and calculators high in importance. Entry-level employees ranked the operation of the telephone very high while teachers placed a lower ranking on this task. Both groups ranked working with checking accounts high. Businesses rated tasks involving payroll preparation higher than did teachers. Teachers rated cash receipts journals and petty cash records higher than did entry-level employees.

2. Both groups rated tasks involved with financial statement analysis low. Businesses also rated using peg-board systems as low in importance.

3. There did not seem to be many differences between the tasks being performed by small, medium and large businesses.

Recommendations

For curriculum

The primary purposes for the bookkeeping and/or accounting class in the secondary school are vocational preparation as a bookkeeping and/or accounting worker or to use the skill attained as supportive to another vocational

business occupation. Course content must be current and up-to-date to be effective. Teachers and curriculum specialists must be aware of current practices in the business environment to be able to train students effectively for today's market place. Utilizing the data gathered in this study and other appropriate information, teachers and curriculum specialists should do some or all of the following concerning the bookkeeping and/or accounting program:

1. Review objectives of their bookkeeping and/or accounting programs in view of the tasks analyzed in this study. Where appropriate, make changes to the existing curriculum to take into consideration tasks being performed by entry-level employees. Entry-level employees are doing a great deal of the clerical functions in their jobs rather than the analytical functions. Working with checking accounts, payroll calculations and journalizing are some of the more important functions and tasks. Entry-level employees are not involved with the financial statement analysis function.

2. Since this study was concerned with only tasks being performed by entry-level employees, one should not assume that because a task is not being performed by entry-level employees it is not being performed in the businesses at all. No attempt was made to see if tasks were being performed by some other employee of the business.

3. In high school bookkeeping and/or accounting programs, the following general areas should be taught:

Operation of office equipment--especially ten-key adding machines, calculators and telephones.

Handling cash, checking accounts and deposits.

Analyzing, journalizing and posting transactions in various types of journals and ledgers.

All phases of payroll calculations and reporting.

Preparation of input for automated processing utilizing terminals and other appropriate methods. Utilization of printed output is important.

4. In high school bookkeeping and/or accounting programs, emphasis should not be placed on the following:

Financial statement analysis.

Ratios and percentages.

Calculation of inventories.

Calculation of depreciation.

5. Curriculum content should be reviewed periodically in light of rapidly changing business activities especially in the area of automated data processing.

6. Curriculum should be coordinated and articulated with bookkeeping and/or accounting programs in post-secondary institutions. Many of the analysis activities now being taught in secondary programs might well be taught in post-secondary programs instead.

7. Follow-up studies of graduates of secondary programs training people in bookkeeping and/or accounting activities should be undertaken yearly to see what tasks are currently being performed by these workers.

8. Teachers and curriculum specialists should become aware of the business community and the requirements they have for entry-level bookkeeping and/or accounting workers and adjust training programs accordingly.

For additional research

Using data which are presently available or which might be obtained in the future, additional research could be performed in the following areas:

1. This study was limited to entry-level positions where bookkeeping and/or accounting tasks were being performed. Additional research might be conducted to determine bookkeeping and/or accounting tasks being performed and attempt to determine what level of training is necessary for an individual to secure a position where these tasks are being performed.

2. This study was limited to entry-level employees in the Wasatch front area of the State of Utah. Other research might be undertaken in areas across the country to broaden the scope of the implications of this type of research.

3. Standard Industrial Classifications were not utilized in statistical comparisons in this study. Other research might compare bookkeeping and/or accounting tasks being performed in various Standard Industrial Classifications to see if there are any differences in the activities being performed.

4. The results of this study should be compared with the findings of other research studies in the areas of task analysis of bookkeeping and/or accounting occupations.

5. Further research should be undertaken to determine the effects of the size of business on the bookkeeping and/or accounting activities being performed.

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APPENDIXES

APPENDIX A

Teacher Questionnaire
Cover Letter

Teacher's Name _____

School _____

Address _____

City, State & Zip _____

Telephone Number _____

Instructions for completing questionnaire:

Please rate each task listed below by three categories. When rating frequency and performance please do so using your best judgment as to entry-level employment opportunities. When rating importance please do so on the basis of entry-level employment opportunities for high school graduates. Please insert checkmarks in the appropriate spaces corresponding to the tasks listed. Please rate according to the following numerical scales.

Frequency:

- | | |
|--------------|---|
| 1. Never | Not performed |
| 2. ◀ Monthly | Performed less than monthly (bi-monthly, quarterly, etc.) |
| 3. Monthly | Performed monthly |
| 4. Weekly | Performed weekly |
| 5. Daily | Performed daily |

Performance:

- | | |
|--------------|---|
| 1. Very Low | Merely assists others in performing the task |
| 2. Low | Performs task with constant supervision and some assistance |
| 3. Average | Performs task with limited supervision and assistance |
| 4. High | Performs task without supervision and assistance |
| 5. Very High | Can supervise others in performing the task |

Importance:

- | | |
|--------------|--|
| 1. Slight | This task is only slightly important for entry |
| 2. Some | This task is of some importance for entry-level employment |
| 3. Important | This task is important for entry-level employment |
| 4. Very | This task is very important for entry-level employment |
| 5. Critical | This task is critical for entry-level employment |

- 1 Never
- 2 Monthly
- 3 Monthly
- 4 Weekly
- 5 Daily

- 1 Very Low
- 2 Low
- 3 Average
- 4 High
- 5 Very High

- 1 Slight
- 2 Some
- 3 Important
- 4 Very
- 5 Critical

T A S K S

1	2	3	4	5

1	2	3	4	5

1	2	3	4	5

Journals Maintained:

General
Cash Receipts
Cash Payments
Check Register
Combined Cash
Sales
Sales Returns and Allowances
Purchases
Purchase Returns and Allowances
Voucher Register
Petty Cash Register

Ledgers Maintained:

General
Accounts Receivable
Notes Receivable
Payroll
Accounts or Vouchers Payable
Plant (Fixed Assets)
Materials and Stores Ledger

Initiate or Prepare:

Journal Entries for Original Set of Books
Data for Electronic Equipment
Adjusting Entries
Closing Entries
Entries to Adjust Inventory Ledger Cards
Entries for Purchase of Materials
Entries for Issuance of Materials
Entries for Correcting
Expense Accounts
Bank Deposits
Withholding Tax Calculations
Entries for Depreciation
Entries for Bad Debts

- 1 Never
- 2 Monthly
- 3 Monthly
- 4 Weekly
- 5 Daily

- 1 Very Low
- 2 Low
- 3 Average
- 4 High
- 5 Very High

- 1 Slight
- 2 Some
- 3 Important
- 4 Very
- 5 Critical

T A S K S

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

Record (post):

Entries in Ledgers from Journals
Adjusting Entries
Closing Entries
Purchase of Materials
Issuance of Materials
Opening a set of Books
Data in Ledgers from Special Journal

Maintain, Analyze or Do:

Payroll Tax Records
Sales Tax Records
Perpetual Inventories
Add (Foot) and balance ledger accounts
Add (Foot), balance and total columns in special journals
Rule and Balance Accounts
Verify balances of control account with subsidiary ledger
Discount Notes
Work with promissory notes
Checking account
Petty cash records

Working Papers Used:

Trial Balance
Post Closing Trial Balance
Worksheet

Prepare Computations for:

Depreciation:

Straight line
Units of Production
Sum-of-the-Years Digits
Declining Balance
Depletion
Uncollectable accounts

- 1 Never
- 2 < Monthly
- 3 Monthly
- 4 Weekly
- 5 Daily

- 1 Very Low
- 2 Low
- 3 Average
- 4 High
- 5 Very High

- 1 Slight
- 2 Some
- 3 Important
- 4 Very
- 5 Critical

T A S K S

1 2 3 4 5

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Prepare Computations for: (continued)

Inventories:

Amount on hand
Physical count
Perpetual
FIFO
LIFO
Weighted Average
Specific
Interest Receivable
Interest Payable
Mark-up
Mark-down
Trade discounts
Cash discount

Payroll Wages:

Handle Time cards
Figures Payroll
Overtime
Shift Premiums
Vacation and Holiday Pay
Bonuses
Pension and Annuity payments
Group life insurance premiums
Medical and hospitalization plan premiums

Payroll Taxes

FICA
Unemployment
State
Federal
Federal Withholding
State Withholding
Workmen's Compensation

- 1 Never
- 2 <Monthly
- 3 Monthly
- 4 Weekly
- 5 Daily

- 1 Very Low
- 2 Low
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- 1 Slight
- 2 Some
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T A S K S

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1 · 2 · 3 · 4 · 5

1 · 2 · 3 · 4 · 5

Financial Reports and Schedules Prepared
Statements:

Balance Sheet
Income Statement
Capital Statement
Retained Earnings Statement
Statement of Changes in Financial Position
Cash Flow Statement

Tax Reports:

Employee Withholding
FICA
Federal Unemployment Compensation
State Unemployment Compensation
State Sales and Use Tax

Schedule of:

Accounts Receivable
Accounts Payable

Financial Statement Analysis
Ratios and Percentages:

Current Ratio
Acid Test Ratio
Percentage of Increase or Decrease
Trend Percentages
Common Size Statements
Turnover of Accounts Receivable
Day's sales uncollected
Turnover of merchandise inventory
Capital contributions of owners and creditors
Pledged plant assets to long-term liabilities
Times fixed interest charges were earned
Rate of return on total assets employed
Rate of return on common stockholders' equity
Earnings per share of common stock
Price-earnings ratio

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T A S K S

1 2 3 4 5

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Financial Statement Analysis (continued)

Comparative Analysis:

Balance Sheet
Income Statement
Analysis of Accounts Receivable
Dividends per share

Operate:

Ten-key adding machine
Calculator
Dictating Equipment
Telephone Equipment
Cash register
Check Protector
Bookkeeping machine

Perform Data Processing Activities:

Prepare Input for Automated processing
Utilize printed output
Operate computer
Write programs
Initiate and prepare flow charts
Use pegboard systems
Operate a terminal to a computer system

Please use the space below to list any accounting tasks not covered above which you feel are important and should be included:

UTAH STATE BOARD OF EDUCATION
 UTAH STATE BOARD FOR VOCATIONAL EDUCATION

250 East Fifth South Street, Salt Lake City, Utah 84111

WALTER D. TALBOT, STATE SUPERINTENDENT OF PUBLIC INSTRUCTION



Mr. Robert Jenkins, in cooperation with the Utah State Board of Education and the Business Education Department at Utah State University, is conducting a statewide curriculum study of secondary level bookkeeping and accounting instruction in Utah. The purpose of this study is to compare entry-level bookkeeping and accounting tasks being performed in Utah businesses with the tasks being taught by Utah secondary teachers.

As a bookkeeping and/or accounting instructor, your input is needed to complete this very important study.

Enclosed is a survey instrument which was developed utilizing such resources as current textbooks, CPA's, public accountants, teachers and bookkeeping workers. I would greatly appreciate your completing this questionnaire and returning it promptly. All information gathered will be kept in confidence and only group statistics will be reported. A stamped self-addressed envelope is enclosed for your convenience.

Sincerely,

GARY M. LLOYD, State Specialist
 Business and Office Occupations

APPENDIX B

Business Questionnaire

Firm Name _____

Address _____

City, State & Zip _____

Telephone Number _____

Respondents Name _____

Job Title _____

Instructions for completing questionnaire:

Please rate each task listed on the following pages by three categories. When rating frequency and performance please do so on the basis of work actually being performed by entry-level employees. When rating importance please use your best judgment concerning what is necessary for entry-level employment in your firm. Please insert checkmark's in the appropriate spaces corresponding to the tasks listed. Please rate according to the following numerical scales:

Frequency:

- | | |
|--------------|---|
| 1. Never | Not performed |
| 2. ◀ Monthly | Performed less than monthly (bi-monthly, quarterly, etc.) |
| 3. Monthly | Performed monthly |
| 4. Weekly | Performed weekly |
| 5. Daily | Performed daily |

Performance:

- | | |
|--------------|---|
| 1. Very Low | Merely assists others in performing the task. |
| 2. Low | Performs task with constant supervision and assistance. |
| 3. Average | Performs task with limited supervision and assistance |
| 4. High | Performs task without supervision and assistance |
| 5. Very High | Can supervise others in performing the task |

Importance:

- | | |
|--------------|---|
| 1. Slight | This task is only slightly important for entry-level employment |
| 2. Some | This task is of some importance for entry-level employment |
| 3. Important | This task is important for entry-level employment |
| 4. Very | This task is very important for entry-level employment |
| 5. Critical | This task is critical for entry-level employment |

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T A S K S

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Units of Production
Sum-of-the-Years Digits
Declining Balance
Depletion
Uncollectable accounts

Frequency

Performance

Importance

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Rate of return on common stockholders' equity
Earnings per share of common stock
Price-earnings ratio

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--	--	--	--	--

--	--	--	--	--

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Use pegboard systems
Operate a terminal to a computer system

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VITA

Robert B. Jenkins

Candidate for the Degree of

Doctor of Education

Dissertation: A Comparison of Bookkeeping and/or Accounting Tasks Performed by Entry-level Employees in Selected Utah Businesses and Bookkeeping and/or Accounting Tasks Taught in Utah Public Secondary Schools

Major field: Business Education

Biographical Information:

Personal Data: Born in Morristown, New Jersey, May 16, 1938, son of Lawrence A. and Sara B. Jenkins; six children--Douglas, Ronald, Gregory, Robert, Paul and Marchelle.

Education: Attended elementary school in Kearny, New Jersey; graduated from Kearny High School in 1956; attended Brigham Young University, Provo, Utah, 1957-1961; received the Bachelor of Science degree with a major in Business Education in 1961; received a Master of Science degree with a major in Business Education in 1974 from Utah State University, Logan, Utah; completed the requirements for the Doctor of Education degree specializing in curriculum development and supervision with a special emphasis in business education at Utah State University, Logan, Utah in 1979.

Professional Experience: September, 1961 to June 1963, business and history teacher in Spanish Fork High School, Spanish Fork, Utah. September 1963 to June 1964, business education and accounting instructor in the College of Business, San Francisco State College, San Francisco, California. June 1964 to June 1966, Administrative Assistant for Overseas USAID project,

Monrovia Consolidated School District, Monrovia, Liberia, West Africa, (San Francisco State College). September 1966 to June 1967, Graduate teaching assistant in Business Education Department at Brigham Young University, Provo, Utah. June 1967 to September 1976, instructor of business education, accounting and data processing at Utah Technical College at Provo, Provo, Utah. September 1973 to June 1974 while on sabbatical leave, Administrative Assistant to Dr. Ted Ivarie, Chairman of the Business Education Department at Utah State University, Logan, Utah. From 1969 to the present, various part-time positions involving bookkeeping, accounting and data processing. September 1975 to present, continuing education instructor at Utah Technical College at Provo in accounting and data processing. September 1976 to June 1977, half-time computer center director and half-time instructor at Utah Technical College at Provo. June 1977 to present, Director of Data Processing Services at Utah Technical College at Provo, responsible for the administration and overall operation of the computer center as well as technical support for computer utilization throughout the College.