A Training Intervention for Control of SBA Loan Defaults: A Theory Development Approach.

J. Dennis Coates

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A training intervention for control of SBA loan defaults: A theory development approach

Coates, J. Dennis, Ph.D.

The Louisiana State University and Agricultural and Mechanical Col., 1989
A TRAINING INTERVENTION FOR CONTROL OF SBA LOAN DEFAULTS:
A THEORY DEVELOPMENT APPROACH

A Dissertation

Submitted to the Graduate Faculty of the Louisiana State University and Agricultural and Mechanical College in partial fulfillment of the requirements for the degree of Doctor of Philosophy

in

The Department of Accounting

by

J. Dennis Coates
B.S., Northwest Missouri State University, 1971
May, 1989

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ABSTRACT

Since the energy-crisis days of the early 1970's, the United States' economy has been gradually moving from reliance on manufacturing operations to a reliance on service industries. This shift has lead to an abundance of opportunities in the area of small business development. In response to these opportunities, the small business sector has undergone substantial growth. One problem associated with this growth is the procurement of financing for small business startups. Since most entrepreneurs do not have the financing options available to large corporations, the majority of small business startups involve owner bank borrowing, often with the assistance of the Small Business Administration (SBA).

Many SBA loans fail. Although the reasons for failure are as diverse as the businesses themselves, one reason often cited is that small business owner/managers do not understand the informational content of accrual based financial statements. As a result, they are not able to react to the changes taking
place within their businesses which are communicated to them through their balance sheets and income statements.

The purpose of this study was to test whether a training intervention for financial statement risk identification could help small business owners to better understand their financial statements. A sample of 80 small business owner/managers were invited to attend a small business seminar. The sample was divided into two groups. The experimental group received training, while the control group received a placebo treatment. A pretest-posttest experimental design was used. Attitudinal and demographic data was also gathered to determine what effect these factors had on success in training.

Results of the experiment indicated that the experimental group which received the training had a significantly higher level of financial statement understanding as measured by the posttest scores. The analysis of the demographic data indicated that the training was effective across all levels of age, income, race, social background and years of management experience gathered. Of the attitudinal variables measured, only the "job involvement" was a significant predictor of success in training.
The results of this study suggest that perhaps training in financial statement analysis should be a prerequisite to SBA lending.
CHAPTER 1

INTRODUCTION

Small business' anomolistic role within the United States' economy presents a variety of interesting accounting research questions. Even though an accepted truism is that small business is risky business, the contribution of the small business sector to the productivity and employment base represents a significant part of the nation's gross national product.

The fact that some small business ventures are successful, while others fail, gives rise to a number of research questions. For example, (1) Can entrepreneurs recognize whether or not their company is structured as a risk-averse entity or risk-utilizing entity? (2) Are certain types of businesses more likely to fail than others? (3) Do owner/managers of small businesses recognize risk signals apparent within their company's financial statements? (4) Are there certain personal characteristics which enable one type of manager to succeed while another manager fails? and (5) Can training for risk identification increase the risk awareness of
small business owner/managers? These questions provide the impetus for this research study.

Accounting information is the primary mode of communication within the business world. Therefore, accounting information may appropriately be used as a testing medium to ascertain to what degree small business owner/managers understand their businesses. The basic premise of this research was that if owner/managers of small businesses can extrapolate risk signals from their financial statements, then this information can be used to reduce their business risk. Ultimately, risk reduction reduces the default rate on loans.

This study gathered empirical data from a subject group consisting of members of the business community who served as surrogates for Small Business Administration (SBA) loan applicants. Demographic and attitudinal characteristics were gathered and analyzed in an attempt to better define prospective successful entrepreneurs. The results of this study provide the theoretical groundwork for future research in a more structured SBA environment.
Identification of the Research Problem

Although the crux of reporting in the popular financial press centers on the largest companies in the United States, such as the Fortune 500, the small business sector constitutes the vast majority of the firms in this country. In 1983, the Statistics of Income, published by the Internal Revenue Service, cited 15.2 million tax returns filed by nonfarm entities. Of these, about 3 million were corporations, 1.5 million were partnerships and 10.7 million were nonfarm sole proprietorships (Liebtag, 1987).

Importance of Small Business

Small Business Administration (SBA) statistics show that firms with fewer than 100 employees represent 99.5% of all firms. This group represents 41% of all workers, 33% of all assets and 26.7% of the gross national product of the United States (Liebtag, 1987).

Given that the goal of most entrepreneurs is to achieve growth, it is somewhat sobering to realize that despite all of the small business activity noted in the past few years, only about 15 percent of small businesses actually achieve substantial growth (Collins, 1987). This may be partially due to the limited financing options available to small business. Even though the available

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post-tax-reform financing sources and techniques are varied, including Master Limited Partnerships, Initial Public Offerings, Leveraged Buy-outs and Employee Stock Ownership Plans, the primary source of capital for small business remains local or regional bank borrowing, often in conjunction with an SBA loan guarantee.

Characteristics of Small Business

Although the individual owners of small businesses are as varied as the services and products provided, some generalizations are evident. The American Institute of Certified Public Accountant's (AICPA) small business committee, in the soon-to-be issued National CPA Curriculum, A Pathway to Excellence, identified some attributes generally common to enterprises considered to be "small business." These businesses: (1) are generally owner-managed, (2) usually have no more than one or two key decision-makers, (3) require a broad range of services and consultation from outside advisors, and (4) are usually privately owned (Collins, 1987).

According to the new American Express Small Business Climate Index, more than half of the small business owners find long-term planning to be difficult, agreeing that they are too busy on a day-to-day basis to plan properly for their longer term needs. Fully, 47% agreed that there
is a need to find a knowledgeable and objective source of advice for long-range business planning (Liebtag, 1987).

Most small businesses succeed because the owner/managers possess specific knowledge or skills. These attributes may be manifested as strong sales or marketing skills, or an astute understanding of a particular product. Few small business owners, however, feel comfortable with their ability as financial managers or planners. The American Express Index further indicates that some 80% of small business owners agree that they can fairly accurately demonstrate their worth to a bank or a financial institution, yet only 56% claim to have a formal business evaluation to show what their company may be worth. Furthermore, most small business owners are critical of their effectiveness in knowing how to best leverage assets to generate cash. Over one half felt somewhat ineffective in understanding how to apply operating leverage (Liebtag, 1987).

In general, the most common management problem to small business owners is a lack of understanding of financial statements and financial information (Collins, 1987). Too often the owners are heavily cash oriented and do not have the formal training to adjust to the informational content of accrual accounting methods.

Often, poor or inadequate financial planning and
management, plus a lack of resources, are the chief causes of small business failures. Even though small business accounts for about 90% of the nation's employment opportunities, these businesses fail at an alarming rate, especially in today's volatile economy. There is a consensus emerging that the vitality of smaller businesses is a key to the vitality of the economy.

Thus, it would appear that the "risky business" label for small business in the United States is warranted. A general lack of understanding of financial statements, coupled with an operating environment that is conducive to competitive entry, along with an often narrow management scope tends to make financial lenders uneasy. Add to this, the current trend toward bank failures, and it is not surprising that financial decision makers are somewhat skeptical when making loans to small business. One method of rectifying this situation is to seek the participation of The Small Business Administration (SBA). The SBA provides guarantees to financial institutions in an effort to reduce the risk inherent in small business lending.
The Purpose of the Research Study

The Role of the Small Business Administration

The SBA, which was founded in 1953, is currently under considerable fire from members of Congress and the business community. Although the agency can count a number of successes, (e.g., it helped funnel $41 billion in federal government contracts into small business in 1981 alone), a number of glaring failures are also evident.

The direct loan program, in which the SBA lends its own funds to disadvantaged businesses, has experienced a default rate of almost 38%, and the agency faces losses of more than $50 million on loans made through 1978. These figures do not include losses which undoubtedly will materialize as a result of the soft economy which has persisted throughout the 1980's (Thoryn, 1982).

This trend is likely to continue. For the five year period ending December 31, 1987, the United States' economy had been steadily expanding. Despite this fact, business failures and bankruptcies have been increasing over this entire cycle. Business failures were up significantly in agricultural areas and in some service sectors, increasing approximately 7% per year. These failures can be attributed to a variety of factors,
including technological advances and demographic shifts. The default rate on SBA loans and loan guarantees parallels this trend increasing at approximately 9% per year. (United States Government, Small Business Report, 1988).

There is no reason to believe that this trend will reverse. The pattern of business failures and bankruptcies correlates strongly with the number of business startups. Because the business failure rate is highest within the first three years of existence, an increase in the number of business startups implies an increase in the number of business failures. Business startups have been increasing due to the lower interest rates prevailing during the latter part of the 1980's. As a result, one would expect the failure rate on SBA loans and loan guarantees to continue to rise well into the early 1990's. (United States Government, Small Business Report, 1988).

Another controversy, over the 8A government procurement set-aside program for minority contractors, continues to simmer as well. This program provides startup assistance to new government contractors by providing low interest loans and management consulting. After a period of time, the agency expected these companies to "graduate" into the real economy and no longer need the government support. The program has 2,000 firms on its rolls, and in 14 years only about 170 have "graduated" (Coll, 1985).
Thus, one must assume that although the mission of the SBA, which is to provide a liaison between the prospective entrepreneur and the financing community, is a noble one, the implementation of that mission may be ready for an overhaul. As the national economy continues to change from a manufacturing base toward a service orientation, the importance of small business will continue to grow. The continued high failure rate of small businesses, however, could result in an even softer financial market for small business sector loans, thus underscoring the need for increased SBA guarantees. The purpose of this research was to provide a theory of training interventions which could ultimately reduce SBA guaranteed loan defaults.

The SBA Environment

Historically, the SBA has required prospective borrowers to submit to an independent audit by a licensed CPA. Since an audit focuses on the presentation of financial information in accordance with Generally Accepted Accounting Principles, this study was concerned with financial accounting statements as opposed to tax based, cost based or cash based accounting statements. Furthermore, this study focused only on those risks apparent in the financial statements. Such risks include the degree of
operating leverage and the degree of financial leverage employed by a business, as well as the nature of future cash flows.

The purpose of the research study was to establish the theoretical basis for utilizing a training program for prospective recipients of SBA loans. The experiment centered on financial statements in an effort to determine the effects of a case study training intervention to improve risk identification. Individual difference variables were gathered in an attempt to identify any significant relationships between subject differences and their response accuracy to the case queries.

The SBA involvement in loan situations was used as a backdrop for this study for two reasons. First, the structure of SBA lending provides a control element not available in the typical financial markets. For example, the rules set down by the SBA apply to all potential borrowers. Thus, it would be possible to expect the SBA to ultimately require a short training session as a condition to loan guarantee acceptance. It is doubtful, however, that commercial lending institutions would ever adopt this philosophy on a wide scale. Second, the current press indicates that SBA loan defaults are a serious problem. (Collins, 1986; Brown, 1988; "Small Business Index," 1988). Thus, the results of the theory development undertaken by this
research study could well provide the impetus for further time series studies in a true SBA lending situation.

Contrasts with Prior Research

A number of discriminant analysis models have been developed which use financial statement data to predict business failures, often in the banking industry (Altman, et al., 1977 & Ohlson, 1980). These studies, however, have used a financial institution point of view. In other words, the purpose of these studies was to allow a financial institution to apply a mathematical model to financial data in an attempt to identify clients who were in danger of bankruptcy. In general, banks wish to minimize losses to stockholders, thus, the identification of expected failures allows the bank to either restructure existing loans or refuse to make a prospective loan.

This methodology was later extended to include mult discriminant analysis and logit models and was applied to different types of businesses in an effort to predict success or failure (Gambola & Ketz, 1983; Casey & Bartczak, 1984; Gentry, Newbold & Whitford, 1985).

The point of view of this research is different from these studies. In this experiment, the training intervention is applied to the prospective borrowers rather than
the lenders. The justification for this approach lies in the differing perspectives of the banking industry and the SBA. A major reason for the existence of the banking system is to maximize earnings for stockholders. The mission of the SBA, however, is to provide a public service. The focus of this service involves aiding the capital formation and/or expansion for current and prospective entrepreneurs. Thus, the mission of the agency is better served by providing assistance to the borrowers in an attempt to help them avoid financial disaster rather than the identification of firms which are already in a financially distressed position.

Methodology

The Research Questions

A case study approach was utilized as an intervention in an attempt to measure the effects of training on the ability of subjects to recognize financial statement risk. An untreated control group design with pretest and posttest allowed comparison between the outcome scores of the experimental and control groups. The design is illustrated in Chapter three, Figure 1. The primary theory development hypothesis of interest is:
H1: The experimental group which receives the training intervention will be more able to recognize financial statement risk than will the control group which receives no training.

The strength of this hypothesis as a theory building tool lies in the logical extension of the experimental study to a job application environment. The transfer of training issues which are implied by this hypothesis will be discussed in chapter two. The theory development issue is enhanced by studies performed in industrial psychology. Although training has been used in many business situations, only recently has training been treated as an intervention for control of a particular event, such as accidents (Spettell and Liebert, 1986). This approach has not been applied in an accounting environment.

An extension of the primary research question involves the construct of individual differences. This area of study suggests that a number of human traits, both demographic and attitudinal, can serve as predictors of success in a variety of tasks. To apply the individual differences idea to the proposed research study provides some interesting insights into the prediction of success or failure, both in the training environment and in an on-the-job setting.

To implement this section of the study a survey instrument was used which gathered both demographic and
attitudinal information. The results of the survey instrument provided variables which were used in a regression equation in an effort to predict training success. The hypotheses which resulted from this part of the experiment include:

H2: The prior management experience of the subject will affect the results of the training intervention, i.e., experience will be positively correlated with outcome scores.

H3: The income level of the subject will affect the results of the training intervention, i.e., income will be positively correlated with outcome scores.

H4: Individual attitudinal differences will serve to predict success in the training session.

Thus, the purpose of the study was two-fold. Initially, the study attempted to develop a theory which suggests that a training intervention can be used for control of a particular event, loan defaults, in an accounting context. Secondly, the study suggested that individual difference variables can be extracted from potential borrowers which may help to predict their success in identifying financial statement risk. This risk identification can then be assumed to transfer to the job setting resulting in better awareness of the risk position of the borrower's company. The improved understanding gained should ultimately help to rectify some of the loan default problems associated with small
business borrowing.

The Research Design

To implement the experiment, a pretest-posttest experimental design was utilized (See Chapter three, Figure 1). This design is generally quite interpretable and controls for most threats to internal validity (Cook & Campbell, 1979). The pretest-posttest mechanism allowed the experimenter to measure the difference in performance between the two randomly assigned groups. In this experiment, performance is measured by scores on a ten-item test. The test involved financial statement risk identification.

The Research Subjects

Subjects of the experiment were members of the Louisiana Association of Business and Industry (LABI) and clients of the Capital Small Business Development Center. Use of these subjects enhanced the external validity of the study since they are active businessmen. Although random selection was not possible in the experimental environment used, the fact that the participants were actual business people, allowed greater generalizability than is often true of most behavioral experiments.
in accounting.

The Experimental Intervention

The case study method of training was used as the training intervention. Relative merits of the case study as opposed to other methods of education are discussed in chapter two. The pretest case included financial statements of two companies. These companies had different financial structures. The Smith Company was structured in such a way as to minimize risk. The Jones Company, however, utilized a high degree of operating and financial leverage thus indicating a higher level of risk. All subjects were asked ten questions concerning these financial statements (see appendix A). The number of correct responses to the questions was their pretest score. Thus, high pretest scores indicated a prior understanding of financial statements.

A similar test was administered to the experimental group after the financial statement training intervention. This second administration provided the posttest scores. The posttest was administered to the control group after they had received their tax placebo treatment, but before they had received the financial statement training information. As a result, the increase in the experimental group's scores can be attributed to the
training intervention, while any increases in the control group scores was a result of testing influences.

Individual difference information was gathered from the subjects during the pretesting phase. This information concerned management experience, age, race, income level, and certain attitudinal variables. The information gathered was used to test if these variables affected the understanding of financial statement risk.

The Statistical Analysis

The first step in analyzing the data was to test for normality. The Durbin-Watson test was used on both the pretest and posttest scores. The data was found to be non-normal. As discussed in chapter four, several transformations were attempted, but the data remained non-normal.

The preferred method to analyze the data from a pretest-posttest design is single factor analysis of variance procedure (ANOVA) (Cook & Campbell, 1979). Because ANOVA is relatively robust against non-normality, this method was originally utilized. ANOVA can, however be biased when selection differences are present. Thus, a two step process was utilized. ANOVA was applied first to the pretest scores in an attempt to rule out selection
bias and then to the posttest scores to measure for significant treatment effect.

The original p-values indicated a strong posttest difference between groups but the p-values associated with the pretest scores were borderline and thus difficult to interpret. This indicated that there might be selection bias within the pretest. To investigate this possibility further, the Wilcoxon nonparametric test was used because this method does not require that the data be normally distributed.

The results of the Wilcoxon test confirmed the original ANOVA results. The p-values for the posttest indicated a strong difference between groups, but the p-values associated with the pretest scores still indicated that selection bias might be present.

To account for this problem analysis of covariance (ANCOVA) was used. The ANCOVA with a single covariate extends the elementary ANOVA by including the pretest measure in the model in the form of a linear regression. (Cook & Campbell, 1979). The pretest scores were used as a covariate to adjust for initial differences between the groups. The resulting test on the posttest scores removes this original pretest difference. The results of this test indicated a strong treatment effect.

The secondary hypotheses were analyzed using regression. Pre-validated questionnaires were used to gather
the attitudinal information. This information was then used to form regression variables. The gain scores of the experimental group were calculated by subtracting the pretest score of each subject from their posttest score. These gain scores were used in combination with the attitudinal variables in an attempt to draw inferences as to what particular individual characteristics influence success in financial statement risk recognition.

The Research Study in Perspective

Business risk can take several forms, including market risk, personnel risk, operating leverage, financial leverage, as well as the risk inherent in any endeavor which involves inexperienced management. Although these risks are not unique to small business, the limited resources of many firms, and the lack of established markets for their products make small business, especially newly formed small business, particularly vulnerable to the perils of the business world. Add to this the fact that most entrepreneurs are not comfortable with financial management, nor do they have a thorough understanding of financial statements and the risk associated with small business is compounded. A major reason small business failures
occur is because the internal decision makers of the companies involved cannot interpret the information that is provided for them via their financial statements.

The role of accounting in this experiment is thus underscored. Should the results of this experiment indicate that small business owner/managers do not understand the risk signals contained in their financial statements, additional research should be conducted in an effort to identify alternative presentations of financial relationships which would be more useful to those business entities not required to report to the Securities and Exchange Commission. Should the training intervention prove successful, additional research should be considered using a time series approach to test the effectiveness of training in a true loan environment.

The integration of the SBA into this research scenario serves a dual purpose. First, the goal of this research is compatible with the mission of the agency, which is to ultimately reduce loan defaults while providing assistance to new and existing small business endeavors. Furthermore, the SBA is often the only source of major financing available to a small business owner, thus, most requirements that the agency imposes will be accepted by the applicant to assure a successful loan process.
To date, most of the attention in accounting for smaller businesses has revolved around external reporting issues. Unfortunately, the importance of financial management and internal control of financial resources has received scant attention.

Size is not the sole criterion for determining which businesses are considered to be "small business." A more effective focus may be the lack of management personnel in these businesses as opposed to the size of an entity. For example, a company with $100 million in sales could be considered small business if the management style utilized involved only one or two decision makers. As a result, the findings from this research could benefit a vast number of business entities.

Perhaps the most important characteristic of small business is that of undercapitalization (Collins, 1987). Often the owner/manager is involved in a business venture with a low capital barrier to entry. For example, the entrepreneur often has started the business with some excess cash or a small personal loan. Situations such as this may lead to a company with a narrowly focused product. The resulting lack of diversification will ultimately contribute to the decline of the business as other entrepreneurs can easily enter the market with a similar idea (Collins, 1987).
Within the same vein, it is not surprising that over sixty percent of small business owners are borrowers, including 40% who took out new loans in 1986. Of the borrowers, forty percent have outstanding loans of $100,000 or more that may combine both personal and corporate extensions of credit (Liebtag, 1987). Since increased borrowing increases risk, it is toward this group that this research is directed.

To fully comprehend the potential of the experiment, one should be familiar with the current situation concerning SBA training for loan applicants. Since its inception in 1953, the SBA has provided management assistance at a minimum of expense to small business firms. In 1964, the Service Corps of Retired Executives (SCORE) was formed by the SBA. The Active Corps of Executives (ACE) was added in 1968.

Members of SCORE and ACE are volunteers who provide counseling assistance free of charge to small business owners and managers. As the role of management assistance personnel on the SBA staff has shifted from counseling to coordinating of the counseling process, more and more small business counseling and training is being assigned to SCORE/ACE personnel, severely reducing its effectiveness (Anderson, Elbert & Floyd, 1985).

Thus, the perspective of the proposed research study may be capsulized as follows: (1) Small business is a
vital part of the nation's economy. (2) The risk associated with small business is evidenced by high default rates on borrowings, particularly those guaranteed by the Small Business Administration. (3) The SBA provides a control mechanism for research into these problems. (4) The training methods currently used by SBA are ineffective. (5) Psychological theory exists which suggests that a training intervention can be utilized to control for loan defaults.
CHAPTER 2

THE REVIEW OF LITERATURE

The accounting and psychological literature is replete with studies concerning training in an on-the-job setting. Very little, however, has been written concerning training as an intervention for control of a particular event in an accounting context. For this reason, the literature review section of this paper sets the stage for the proposed study within an accounting context. Furthermore, this section focuses on the justification of the theoretical derivation through a review of the pertinent literature.

Setting the Stage

Accounting Perspective

In the *Statement of Financial Accounting Concepts Number 1*, the Financial Accounting Standards Board (1978), enumerated three objectives of financial reporting:
"... (1) Financial reporting should provide information that is useful to present and potential investors and other users in making rational investment, credit and similar decisions. (2) An objective of financial statements is to provide information useful to investors and creditors for predicting, comparing and evaluating potential cash flows to them in terms of amount, timing and related uncertainty. (3) An objective of financial reporting is to provide information about the economic resources of an enterprise, the claims to those resources and the effects of transactions, events and circumstances that change its resources and claims to those resources."

In sum, the objectives of financial reporting are to aid the accounting constituency in assessing an entity's earning power and risk, while providing information on assets and liabilities of the firm. This information is presumed to facilitate decision making. How then, can these objectives be applied to the small business community to effectively utilize the resources and expertise of the Small Business Administration? The training intervention proposed by this study is one possible alternative.

Current Trends in Small Business

The importance of the small business economic segment in the United States has been increasing steadily. Employment in the aggregate American economy has increased by ten
million workers since 1980. Small business has provided about two-thirds of these new jobs. Much of this expansion can be attributed to a booming technology and service sector dominated by smaller companies. These companies are often propelled by rapid innovations in the computer and communications fields (Swain, 1987). This trend of increasing small business startups is showing signs of continued strength. Five million of the new jobs were created in 1985 and 1986 alone (Harper & Churchill, 1987).

While the growth of the United States economy actually decelerated during late 1984 and the first half of 1985, growth in small business employment continued to rise. One explanation for this phenomenon may be the lower costs of borrowing which enabled small business owners to have access to sufficient financing at relatively reasonable rates. Increased cash flows, fueled by retaining past profits and utilizing depreciation deductions, permitted firms to expand capital expenditures without the heavy reliance on external financing (Liebtag, 1987).

Although these figures seem to suggest a bright future for small business, certain factors indicate that a downturn may be approaching. Interest in this area is evidenced by the fact that the White House Conference on Small Business, held in August, 1986, drew more than
4,000 participants. The purpose of the meeting was to assign priorities to an agenda of small business problems for future consideration. The bright economic trends of the past few years may have peaked. The economic environment, according to the New American Express Small Business Climate Index, has stabilized. This stabilization marks an end to the almost continuous improvements enjoyed since late 1981 (Liebtag, 1987, United States Government, 1988).

The index also showed that during 1986, the demand for small business goods showed a marked decline to an annual growth rate of 0.6%, down from 7.6% in 1985 and 9.1% in 1984. The problem was compounded by an increase in operating costs which increased at a 4.3% rate. The resulting profit squeeze will undoubtedly have a pronounced effect on small businesses because they have fewer alternative methods of capital formation. The squeeze could increase the demand for bank borrowing. The increased demand may result in a greater number of requests for SBA guarantees. This study could aid in developing a method of reducing the loan defaults that have historically resulted during business downturns.
The idea of training for risk identification has been applied in the industrial psychology field. Following the nuclear accident at Three-Mile Island, government investigations revealed that several factors directly contributed to the near disaster. Among these were inadequate training, unclear operational procedures and a lack of diagnostic skills. (Spettell & Liebert, 1986). As a result of this investigation, a program of training was instituted by a group of industrial psychologists which was directed at training nuclear plant employees to identify risky situations which might occur within their job environment. Thus, the intent of the program was to control for an event (accidents) by training the plant workers to recognize risk and subsequently respond to reduce that risk.

Obviously, the consequences of a small business manager's failure to recognize danger signals within the company's financial statements may not be as dramatic as the Three-Mile Island accident. These consequences can, however, be severe to the small business owner/manager should they result in business failure.
Applying the Theory

Some of the observations of Spettel and Liebert's study can be useful in the small business context. They suggest that operators of modern person-machine systems have three related, but separable, tasks to perform. These tasks include monitoring, interpretation and intervention. Monitoring entails continuously attending to visual and auditory signals to detect abnormal states or emergency conditions. The manager of a small business must likewise monitor the financial position of the firm he is controlling. These signals may be discrete or they may be gradual (Spettel & Liebert, 1986). The same is true in a business environment. A business manager would probably notice if a major customer failed to pay a large invoice. However, the manager might be less likely to notice a gradual increase in the levels of inventories.

When one or more abnormal display readings have been detected, then interpretation is necessary. That is, the person in charge must diagnose the nature of the problem or try to decide why the deviation is occurring. This is true in the business environment as well. The responsibility of the small business manager is to determine to what extent, if any, the noticed change will affect the risk associated with the business. Thus, the process of
interpretation involves the generation of logical hypotheses as to what could cause these changes. Then, some attempt must be made to affirm or disaffirm the hypotheses. For example, the level of inventory may be a result of normal seasonal fluctuations.

The third step, after interpretation, is intervention. Intervention requires that the operator select and execute appropriate actions to correct the system failure. Again, the corollary in the business environment would be to take whatever action might be appropriate, such as a disposal of out-of-date inventory.

As a result of the Spettel and Liebert study, a training program was developed to control for accidents which involve failure of the man-machine interaction. The basis of this research involves a training intervention to control for another event, loan defaults which carry an SBA guarantee.

The Effects of Heuristics

One apparent problem with this paradigm is particularly relevant to the research question. A substantial body of research suggests that human beings selectively discount or ignore information that is difficult to understand. Furthermore, Arkes and Harkness (1980) demonstrated that once people have arrived at a problem
diagnosis, they become more likely to falsely recognize symptoms that are consistent with their diagnosis. As a result, they are less likely to recall the true symptoms that may be inconsistent. In other words, small business managers may tend to ignore problems that are evident in the financial statements simply because they do not understand what the problems represent. Arkes and Harkness term this situation a suppression bias.

Research in the area of heuristics lends credence to this argument. As might be expected, the combined effect of the availability heuristic (Tversky & Kahneman, 1974), and suppression bias leads people to be excessively confident in obvious interpretations of problems while ignoring more difficult interpretations. Furthermore, Einhorn and Hogarth (1978, 1985) suggest that experience does not obviate this tendency. Their findings suggest that regardless of their level of prior experience, people tend to have excessive confidence in a decision once they have arrived at an interpretation of a problem. Meixner and Welker (1988) found that the association between auditor consensus and experience was very weak, and suggested that influences other than experience were responsible for audit judgements.

Ashton and Ashton (1988) point out that auditors have a tendency to rely on prototypical rules of thumb,
rather than applying Bayesian theory to decision-making. They point out that this unconscious reliance is a result of the availability heuristic and suppression bias. Furthermore, the authors found evidence that increased experience actually increased this problem due to increased confidence in an erroneous decision.

A generalization suggests that in situations involving cognitive tasks, judgmental heuristics may bias interpretations of system abnormalities. A training intervention which highlights the potential problems can mitigate the effects of a number of these heuristics. The application of these research findings in an accounting context should be fruitful since a large part of accounting deals with the evaluation of information signals (Einhorn, 1976).

To complete the parallel between the research following the Three-Mile Island accident and the current research, one should consider the attributes of effective management. An important characteristic of "good" management is the ability to evaluate past changes, to react to current changes and to predict future changes. This is consistent with the view that management is essentially a decision-making process. Furthermore, the role of accounting within this process is to serve as an information system. This system acts as an integral part of that decision-making process.
It is inconceivable that any workable information system could provide data relative to all of the risk associated with operating a small business. Thus, this research will focus on the risk which is identifiable within the financial statements.

Training in Accounting

Training in the field of accounting is probably as old as the profession itself. Almost from its inception, accounting has involved on-the-job training. When the First Society of Accountants was formed in Venice in 1581, the membership initiated a six year unpaid apprenticeship followed by an oral examination as requirements for membership (Chatfield, 1977).

Although the profession has undergone a myriad of changes since that time, the use of training has remained relatively unchanged. The focus of training programs in an accounting setting have been exclusively insider oriented. That is, training programs have been initiated for the benefit of the accounting staff rather than for the benefit of outside users.

Accounting and Decision Making

As an adjunct to the experiment, a brief introduction
was given to the subjects emphasizing the importance of accounting information for small business decision making. Traditionally, management decision making has not been a main emphasis of accounting. Financial accounting and cost accounting stress the reporting of a firm's progress and the control of costs within that firm. The result has been a lack of clarity about what role accounting can play in decision making.

Gibbins (1984) attempted to integrate psychological theories into the study of decision making in an audit environment. His propositions provide the basis for several of the secondary hypotheses to be discussed in chapter three. He proposed that experience has an effect on judgement. He further states that personal characteristics affect the view the subject takes toward the problem of interest.

One approach to the role of accounting in business decisions is to examine the decision-making process. This process consists of several steps: (Gibson & Haynes, 1963).

1. Recognition of a need for a decision.
2. Determination of alternative courses of action.
3. Assembly and organization of relevant information.
4. Evaluation of each alternative.
5. Choice of one of the alternatives.
6. Follow-up of the decision.
The importance of accounting information may be emphasized in each step as financial statements are analyzed. How then, should one approach financial statement analysis?

One of the simplest techniques for extracting the maximum amount of information from financial statements is ratio analysis. In a study of 518 small businesses, 68% stated that they regularly use ratio analysis (Slavin & Armen, 1962). When these firms were ranked according to profitability, only three above the median profitability level failed to utilize ratio analysis. Ratio analysis was used during the training intervention as an illustration of one method of financial statement analysis.

Current Approaches

recent study (Sarri et al, 1988) found that training in the business environment helped to improve organizational effectiveness and competitiveness. Their study surveyed 100 firms of various sizes in an effort to identify current trends in training and education within these companies. They found that firm size correlated with amount of training and that the primary reason given for the training was to enhance job specific skills.
Engle (1984) compared the accounting training methods of large firms to smaller firms. The author found that the more diverse methods used by large firms were more effective for providing staff accountants with updated information. Recognizing that acquiring a professional education is becoming a lifetime endeavor, Sheppeck and Cohen (1985) attempted to place a value on the training programs of some accounting firms. Their attempts were largely unsuccessful citing cumbersome methods and vague assumptions regarding human resource cost factors as the primary reason.

Stoughton (1978) made a case for training accountants as managers. They cite, as evidence, the high incidence of top level managers that have advanced through the accounting department at Caterpillar Tractor. The views of the authors underscore the importance of an understanding of accounting information in developing a successful management technique. For example, within the Caterpillar Tractor Company managers are expected to prepare budgets, forecast effects of monetary changes, calculate return on investment, analyze exposure drafts on proposed accounting standards and determine their effects on the company. All of these tasks involve the need for a varying amount of understanding.
of accounting information.

Typical approaches to training have been professional as opposed to experimental. For example, Gray and Cooper (1986) proposed a practice fellows program in response to the criticism of American business schools in recent years. They suggest that employers perceive newly hired graduates as having little appreciation or understanding of the realities of business. Their conclusion is that business schools are too detached from reality. In effect, the authors suggest that students should share in the more practical side of the teaching profession. This can be accomplished by having students share such duties as advising, counseling, teaching and curriculum development. Their premise is that participation in the basic parts of the profession will give them a broader perspective than simply attending classes.

More often, however, training in accounting has taken a more traditional path. For example, research has been conducted in the following areas: Training for staff development and continuing education on current accounting problems and professional growth (Gayton, 1978) (Dittrich & Shannon, 1975); training for acceptance and usage of a new technology, such as computers (Quarmby, 1984); and on-the-job training for staff accountants (Neumann, 1981). The most popular reasons given for
including training in the workplace were (1) Understand our company's approach to management; (2) Obtain job-specific knowledge; and (3) Broaden the individual's perspective (Saari et al., 1988). No evidence was found to indicate that a training intervention for control of an event has been empirically tested in an accounting environment.

The Transfer of Training Issues

The transfer of training issue involves the extent to which the modified behavior resulting from the training intervention transfers to the workplace. The utility of a training intervention lies in its ability to improve the participants' effectiveness beyond their pretraining levels.

To establish an experimental environment conducive to a training intervention, some preliminary assumptions should be considered. For example, the following are rudimentary:

(1). Performance differences among employees occur on most jobs or job tasks. These variations are typically normally distributed forming a bell shaped curve of performance expectations.

(2). Training programs in general result in improved participant ability. However, evidence suggests that not all training programs have an impact on participant
performance. Some programs are simply designed to acquaint employees with an organization and their position in it. Nevertheless, the power of a training intervention to produce performance improvement is critical in determining its overall utility to any organization.

(3). Increases in employee performance yield increases in organizational effectiveness (Sheppeck & Cohen, 1985).

Some generalizations concerning these issues can be of benefit when considering a training intervention. For example, there is a direct relationship between the amount and quality of training carried out and the overall success in implementing a new system. Furthermore, the longer the gap between learning and doing, the greater the chance to forget newly acquired skills (Quarmby, 1984).

Effective Interventions

On-the-job training is most successful when the tasks utilize information previously acquired (Neuman, 1981). Thus, this method is good for the acquisition of deepened knowledge, sharpened judgement and increased proficiency. An offshoot of on-the-job training is often role modelling, which can be a form of training in itself. On-the-job training is less successful than other methods for acquiring new knowledge.
The acquisition of the desired behavior and the maintenance of that behavior are both necessary for a successful training intervention. Too often, trainers have put all of their efforts into the acquisition-of-skills portion of the training (Saari et al., 1988). Thus, when managers looked at on-the-job performance, they often found that the newly acquired skills were not being put into practice once the participants had left the training session.

Michalak (1981) studied six offices of a major division of a large manufacturing company in order to learn more about maintenance of behavior activities. The study involved an interpersonal skills training program for supervisors. The research question investigated was "What happened when various maintenance-of-behavior activities were implemented?"

The results showed that several factors affected the transfer of training back to the workplace. The most important factor was utilizing a training task that was similar to actual on-the-job work. Other factors which influenced the transfer were: (1) strong management commitment to the program, (2) discussion of transfer of training issues during the training, and (3) asking participants what they felt were the obstacles to applying the program on the job.

Training need not take the form of a formal educational intervention. Hartman & Sumners (1983) conducted
a study to determine to what extent information gathered at professional accounting meetings was utilized in the daily work routine of those who attended.

The long-run impact of a meeting dealing with the accounting requirements of the Foreign Corrupt Practices Act was measured using an eighteen month time lag. The results of the study indicated a significant difference between the experimental group (those who attended the session) and the control group (those who did not attend the session). The differences focused on both the amount of training given relative to the Foreign Corrupt Practices Act and specific audit steps taken to search for violations of the act. The results of this study support the hypothesis that training can be utilized to control for a specific event.

**A Classic Empirical Study**

Baumgartel and Jeanpierre (1972) empirically investigated the issue of transfer of training. The purpose of their study was to determine how several factors influenced the effort of managers to apply, in their back-home settings, knowledge gained in executive development programs. Data were obtained from a stratified random sample of 240 managers, representing a population of over 2,000 who participated in one of seventeen management development
programs. The purpose of the study was to investigate such questions as: (1) What kinds of training programs are most likely to produce effort by the managers to use what they had learned in the back-home setting? This output variable was termed adoptive effort; (2) What kinds of managers are most likely to apply new knowledge? and (3) What kinds of organization environments are most likely to facilitate such managerial efforts? The study demonstrates the critical importance of organizational climate for the effective transfer of new learning. The authors suggest that large-scale organizational development efforts must be concurrent with management training if maximum benefit is to be obtained.

The Baumgartel and Jeanpierre article provides support for the utilization of the SBA constraint in this experiment. The survey instrument was designed to permit analysis of the factors that affect the extent to which the trained managers attempt to innovate or apply new knowledge when the training session is complete.

Data for their study were obtained by a questionnaire survey of 240 managers who represented a true random sample drawn from the lists of past participants in a variety of teaching/learning programs. The primary outcome variable of interest in this study was adoptive
effort. The questionnaire instrument consisted of fixed response and open-ended questions covering several areas. The areas included: (1) education -- amount and place (foreign/domestic); (2) attitudes toward, perceptions of and effects of the target training program itself; (3) descriptions of the organizational climate of the respondent's organization; (4) general attitudes and beliefs concerning training; (5) job and demographic data; and (6) self-ratings on a number of psychological dimensions.

The operational measurement of adoptive effort consisted of the coded response of the respondent's answers to two open-ended questions. These questions concerned how hard the managers had tried to use the information learned at the training session in their back-home settings.

The first objective of the analysis of adoptive effort was to examine the measurement of the criterion or outcome variable itself. The second objective was to determine the pattern of relationships between all variables measured in the study. Finally, a subsidiary set of analysis of variance was carried out to isolate the significance of the variable categories discovered in the exploratory analysis.

Results indicated that 25% reported an application effort that was a "major attempt," 18% showed a "minor
attempt," 8% indicated a "general effort" and 46% showed no attempt. Three percent did not respond. This study also polled the supervisors of these managers to see if they agreed with the adoptive effort reported by their managers. Only 21% of the bosses thought that the managers had tried the new technology compared to 51% of the managers themselves. Although this could be because the bosses were not aware that the managers had tried to apply the new learning, this could also be a result of demand characteristics.

Personality factors were measured using self-reports. Managers who described themselves as "planners" and "risk-takers" showed significantly higher levels of innovation. Response was measured by such questions as "I like to set long-range plans and follow through over long periods," and "I take chances with new ideas, jobs, people and investments."

To implement data analysis, four scores were prepared for each of the 240 respondents. The first score represented the dependent variable. This score was computed as a composite index consisting of the response magnitude of the adoptive effort questions and the degree of success scores. The second score was an organizational climate composite. This consisted of the total of five item scores representing the extent to which organizational climates favored innovation. The
third score was a training value score based on attitudes toward the training. The fourth score was a demographic variable based on reported income.

The results indicated that personal value orientations and motivations play a significant role in the innovative process. Furthermore, some evidence indicated that persons whose career aspirations were raised by participation in the management training were more likely to attempt the application of new knowledge. Organizational climate was also an important factor in the extent to which adoptive effort was applied.

Although the miniature job training approach seems to be effective, this method will not apply in all situations. The miniature job training approach suggests that frequently the test for job suitability measures many attributes that are unnecessary for successful job accomplishment. Utilizing discriminant analyses techniques, Siegel and Bergman (1975) tested whether or not navy enlisted men could qualify for a welding job.

The results of the study indicate that miniature job training and evaluation concepts appear to possess merit as a technique for predicting the performance of "low aptitude" applicants, but was less effective for higher ones. This conclusion supports earlier conjecture that miniature job training seems supported for mechanically oriented motor tasks, but additional verification
is indicated in other job contexts.

Summary

Transfer of training from a laboratory setting to a field setting would generally be enhanced if the following conditions are met (Goldstein & Musicante, 1986) (Leifer, 1980):

(1) The task utilized in the training session should closely resemble the on-the-job task.

(2) The training session should not be too difficult for the respondents, and should be well organized.

(3) Individual differences among trainees will result in varying levels of success, not only in the training itself, but in the transfer to the work place.

(4) A positive transfer climate facilitates transfer of training.

The Individual Difference Issues

The phrase "individual differences" suggests a broad area of study and inquiry. The term is used here to describe individualized traits that may be present within an otherwise homogeneous group. These traits influence experimental outcome. Many variables of interest have
been studied in the area. Some of the more common are personality traits, attitudes and demographic data.

According to Cronbach (1971) there are two main types of predictor measures which are generally used when researching individual differences. These include: (1) measures of maximum performance, e.g., general mental ability and proficiency at a task and (2) measures of typical performance, e.g., interest, attitudes, general personal information, personality, etc.

The most frequently used predictor class has been "aptitudes," while "supervisor's evaluation" has been the most frequently used criterion class. When doing research of this type, one must carefully evaluate what dimensions are being tested. Often those that are tested are not those necessary to learn the job. Findings suggest, for example, that it is not sufficient to use tests to predict the potential of candidates acquiring the abilities or skills found on one specific part of the learning curve no matter how "flat" it appears. This is true because even though the curve may appear flat, (no new learning is taking place), other outside factors may be either helping or hindering the learning. This is often a problem when analyzing the behavior of the "experienced
worker" (Atkinson, 1973). The other abilities or skills which are required during the learning period must be determined and a test constructed to assess whether or not the candidate has the potential to acquire these skills as well.

In some instances, testing can provide fruitful insights into job success. Reilly and Manese (1979) used a mini-course test performance to predict learning ability for a new telephone technology. The output variable was based on the sum of the seven end-of-lesson test scores, plus the score on a 42-item summary test. Time necessary to complete the course was also used as an output variable. Results showed that a combination of time to complete the course and performance on the objective tests was predictive of time to complete self-paced training in electronic switching. Cross-validated estimates of validity were used to develop estimates of utility given different selection ratios.

Personal Characteristics as Predictors

Krout (1975) and Mayfield (1972) utilized a factor analysis of personal characteristics in a peer review setting to predict future success of management level employees. The methodology utilized 13 personal
characteristics which resulted in two factors, impact and tactfulness, with ten items loading on impact.

These factors were then compared to future performance for the employees to determine which, if either, was an effective predictor of success as determined by future promotions and future managerial performance ratings. Peer groups and executive ratings were both used and it was found that peer ratings were better predictors of promotions, while executives were better predictors of high performance ratings. The peer groups were formed in a training environment so that the rates would not be affected by rivalries.

Bale and Rickus (1973) utilized an individual difference criterion set to predict success in naval flight training. Using a multiple correlation methodology, the authors created a group of variables that included math examination scores, undergraduate grades, etc. They then formed a predictive model of success or failure in graduate flight training programs. The model was applied to historical data as a comparison control group. The true attrition rate for the combined sample was 13%. If the predictive model had been used, the attrition rate could have been reduced to 8.8% by limiting entrance into the program. A problem with this type of model is that false negatives can appear. In other words, sometimes the model predicted failure, when in actuality, the
subject had succeeded. In this study the model would have resulted in a 6.9% rate of false negatives, while the actual failure rate would have been reduced by 41.4%.

Perhaps the most impressive attribute of this study is the success of the model, given the nature of the subjects. The group of aviators studied here can be considered a highly restricted, homogeneous group in so far as they were the survivors of vigorous screening and training procedures. Furthermore, those selected for jet training are nearly always drawn from the top of the distributions of early ground school and primary flight grades. The fact that it is possible to predict later success from such a highly restricted sample is an encouraging comment on the success of this methodology.

Hanson utilized personality, biographical data and cognitive factors to predict accidents (Hansen, 1989). He utilized the Bennett and the Wonderlic Personnel Tests as a measure of cognitive abilities and the General Social Maladjustment Scale as a measure of personality. Demographic variables of interest were age, job experience, and accident risk. The author sampled 362 production and maintenance workers at a large chemical processing company. His analysis found that the variables used could explain 57% of the variation in accident rate among the employees tested.
Day and Silverman (1989), likewise, studied the effect of personality and job performance. The researchers developed a performance appraisal form with six performance dimensions identified as being important to job success. These included (1) potential for success, (2) technical ability, (3) timeliness of work, (4) client relations, (5) cooperation, and (6) work ethic. The authors then asked seven accounting partners to provide performance ratings on 43 accountants who were either current or past employees of a medium sized accounting firm. Each partner was asked to rate every employee independently using the six scales.

Personality was measured by using scores on the Personality Research Form. This form measured such personality traits as impulse expression, orientation towards work, and degree and quality of interpersonal orientation. The results indicated that work orientation and interpersonal orientation were significantly related with at least three of the performance dimensions.

**Life History Questionnaires as Predictors**

One of the most widely accepted truisms in psychology is that the best predictor of future behavior is
past behavior. This undoubtedly provided the impetus for the development of the Life History Questionnaire (LHQ). The Life History Questionnaire elicits comprehensive information by covering such areas as place of residence, size of hometown, type and size of residence, size and composition of family, quality of food and clothing, height, weight, etc. Questions in the LHQ emphasize the occurrence of events rather than attitudes and feelings. For example, a question may be phrased as "In what size community do you live?" rather than "In what size community would you prefer to live?"

Helmreich and Bakeman (1973) use a life history questionnaire to create predictor variables for performance in naval diver training. The study was designed to predict a pass/fail dichotomous variable and a threeteried success variable. For example, did the subject pass? And if so, were the scores of the subject in the upper one-third of the class, the middle third or the lower third?

Subjects were enlisted men in the Navy. Some of the results were unexpected. For example, there existed a high correlation between receiving physical affection and success in military training. Academic performance (achievement) in school was more important than raw intelligence, perhaps suggesting that a strong work ethic outweighs the inherent advantages of high intelligence. A
significant primogeniture (effect of being the first born in a family) association suggested that birth order is also significant. Socioeconomic predictors were strongly related to the pass/fail criterion, but not to the level of success. Health was not correlated to success, but athletic honors were.

Harrison and Hulin (1989), likewise, found life history information to be useful in predicting work absences. They performed two studies involving attendance records of 2,130 full-time white collar, incumbent employees of a national financial service organization. Utilizing stepwise regression, the authors included forty predictors in their model. They found that age, marital status, level of education, income and location to be the primary indicators of propensity to miss work.

Attitudes as Predictors

Research on various attitudes associated with job training has usually been centered around modifications of attitudes towards work during training (Ryman & Biersner, 1975). Finch (1971) investigated the relationship of these work attitudes to later job performance. He showed that trainee's attitudes toward automotive repair were uniquely associated with the accuracy of
automobile trouble-shooting performance after completion of training. This would seem to suggest that success in training improves the confidence of workers and thus improves their attitudes toward their jobs.

Ryman and Biersner (1975) formed a questionnaire to derive factors concerning attitudes toward jobs and training in general. The factor analysis revealed a training confidence factor, a leadership scale, a training factor and a conformity scale. These were then applied to three levels of training and three reasons for failure to complete the training course.

Attitudes of confidence about training were found to be identifiable and valid for predicting success in two of the levels of training. Two primary rotated factors were common to the two separate groups. These were "training confidence," which was useful in predicting training success and volunteer drops. Leadership was found to be predictive of success in one of the samples used. These results suggest that under conditions in which failure during training occurs, specific attitudes toward training can be used to select those who will most likely succeed. The model was especially accurate in the prediction of those subjects who voluntarily quit the job.

Meyer, Paunonen, Gellatly, Goffin and Jackson (1989) studied the correlation between organizational commitment and job performance. They utilized Mowday's Organizational
Commitment questionnaire to measure the commitment and job performance was measured using supervisor's ratings. The subjects of this experiment were first level managers in a large food service organization. These managers were evaluated by their district managers. They found significant correlations among all performance measures and the construct of commitment.

In an auditing context Bamber, Snowball and Tubbs (1989) analyzed the effects of role conflict and role ambiguity on the structure of an audit. They defined role conflict as the presence of incompatible role pressures and role ambiguity as the lack of clarity of behavioral requirements. They measured role conflict and role ambiguity using Rizzo's 1970 scale. Utilizing audit seniors of four Big Eight accounting firms, the authors received 133 responses to their questionnaire. Results indicated that role stress was greater for auditors who worked in an unstructured environment.

Choice of Variables

The selection of the particular individual difference variables to utilize in a study seems to be specific to the individual study. Often, the intuitive approach in the choice of variables is quite
successful. Information with the highest validity seems to have a point-to-point correspondence with the output criterion. Asher and Sciarrino (1974) concluded that biographical information showed substantially higher predictive validity when job proficiency was the output criterion. Other predictors including intelligence, personality, perception, motor skills and mechanical ability were less successful predictors. The generalization seemed to be that factual and verifiable historical information about applicants was the best predictor of future performance in specific positions. A dramatic example of how obscure these relationships can be is this single biographical question, "As a child, did you ever build a model airplane that flew?" This question, alone, was as good a predictor of success in flight training during World War II as the entire Air Force Battery of tests. These tests included measurement of hand-eye coordination, intelligence and mathematical ability. If a point-to-point theory has merit, then complex work sample tests that are miniature replicas of on-the-job behavior should have more predictive power than simple motor skills tests.
Task Characteristics

Work sample tests have generally been classified into the categories of either motor or verbal. A work sample was classified as "verbal" if there was a problem situation that was primarily language-oriented or people-oriented. In almost all studies of the motor work sample test, the job proficiency criterion was a supervisor's rating, usually with a graphic scale. In only a few studies was the reliability of the criterion rating reported. When the criterion was success in training, the measure was either the completion of training or grades achieved. Again, the reliability of training criterion was rarely reported.

The motor type work sample in which subjects physically manipulated things was second only to the biographical item in predictive power. The verbal work sample was consistently below the motor work sample in its ability to predict job proficiency, but still it was in the top half of the listing. The motor work sample tended to be a somewhat better predictor of job proficiency than of success in training. The reverse seems to be the case for the verbal work sample. When success in training was the criterion, the verbal work sample had substantially more significant validity coefficients than the motor, generally in the range of
.40 to .49. One explanation for the results is the point-to-point theory which states that the more points in common between the predictor and criterion space, the higher the validity coefficient.

One potential explanation for the predictive power of complex work sample tests is the concept of "work methods." This concept suggests that workers develop certain work habits, or paradigms when approaching a task. Thus, the job miniaturization task may elicit the application of these favorable work methods. The subject may then be successfully applying them to the experimental task.

Experience is an offshoot of the work methods concept. The miniature work sample may be sorting applicants into a continuum of individuals with progressively more criterion-related experience. Even if all of the applicants do not have any prior experience in a specific position, the realistic work sample test may be measuring prior experience which has transferred to the criterion test. An experience factor was used in the present experiment.

Collins (1978) attempted to use several kinds of individual difference variables simultaneously. The Collins study attempted to determine how personality, perceived budget characteristics and attitudes toward these characteristics correlate with budgetary
response attitudes. He utilized the personality trait of flexibility as measured by a ten-item dogmatism scale. He also used the demographic variables of age, tenure in job and job status as predictors. His methodology included a step-wise linear regression.

Accounting Applications

Most of the accounting studies which utilize an individual differences approach focus on the impact of personal characteristics of decision makers. This is often operationalized within the context of analyzing qualities of judgement or the impact of varying amounts of information on quality of judgement. Driver and Lintott (1973) revealed that, across levels of complexity, individuals with different decision styles processed different amounts and different types of information. Accounting studies based on these developments attempted to classify users of information by their cognitive structure. Some have attempted to design information systems best suited to the individual style of the decision makers. Constructs used to classify individuals included decision style and various personality measures.

Foran and DeCoster (1977) studied the effects of
participation, authoritarianism and feedback on cognitive dissonance in a standard setting environment. The authors suggest that to be effective, performance standards must be accepted by the workers as valid goals. They justify their study by addressing the problem of how to create valid, acceptable performance criteria in the development of standard cost and budgetary systems. Their individual difference variables were the amount of participation in standard setting and a measure of authoritarianism. The output variable was a measure of cognitive dissonance. Although their theory is well grounded, the study is weakened by poor variable explication and use of student subjects to measure an output construct (cognitive dissonance) that would be affected by time.

Vasarhelyi (1977) used a planning context to further explore the relationships between decision style and performance, information utilization and decision speed. In the experiment 50 subjects (average 7.4 years of business experience) made business planning decisions using an elaborate case study and an interactive decision support system. Subjects were classified as either heuristic or analytic using a test for cognitive style. The task included both structured and non-structured phases and both quantitative and qualitative data. Subject performance was measured by the ranking of plans by
a panel of judges. Information utilization (kind and quality) was measured by a self-report questionnaire. Results indicated no difference in performance (neither overall, nor comparing structured and qualitative information). There was weak support for heuristics using less information overall and making faster decisions.

Using an audit task, Weber (1978) examined the relationships of a personality measure (dogmatism), risk-taking propensity and experience to the accuracy variability of auditor's decisions and the degree of confidence in those decisions. Of twelve hypotheses tested, only three showed significant results and two of those were in an unexpected direction. The only hypothesis confirmed was that the extent of audit planning decreased when risk-taking propensity increased.

Neither of these studies can be viewed as encouraging the idea of tailor-made information systems, nor have they provided much insight into how people make decisions. As Vasarhelyi (1977) noted, the formidable measurement problems faced in this research area are the likely cause of this failure. These problems coupled with the likelihood that any existing relationships are probably weak to begin with, further
question the possibility of finding meaningful links between cognitive characteristics and overt behavior. Few studies continue the search for a meaningful connection between cognitive structure and decision behavior. Most of the recent work has emphasized the importance of task characteristics or the interaction with cognitive structures (Libby & Lewis, 1982).

The Case Method of Training

The case method of training involves the presentation, in written form, of a problem in need of a solution. Just as training can involve the simulation of a machine control task, it can also attempt to simulate certain aspects of the manager's situation (Landy, 1985).

The employment of the case method in this experiment is such a simulation. In recent years, auditing case studies have become an integral part of the in-house staff training programs of most of the larger accounting firms in the United Kingdom. Their experiences with this training method indicate that its popularity and success are mainly attributable to the simulated experience of real world situations which it provides for the firm's less senior staff (Innes & Mitchell, 1982).

Application of the case method in accounting
research is not new. While researching characteristics of effective management, some methodological issues involving case studies have been addressed. First, concern over the representativeness of experimental paradigms used in this research was addressed by Mock and Turner (1979) and Libby (1979b). They demonstrated how more realistic case material could be constructed within the constraints of the ANOVA design in their internal control evaluation and commercial lending settings.

The reactions of practitioners to the Mock and Turner study suggest that, while the results remain essentially unchanged, a more realistic experimental paradigm made the results more convincing to practicing accountants. Second, Moriarity and Barron (1976, 1979) and Rockness and Nikolai (1977), Libby (1979a) and Brown (1981) introduced analytical techniques new to the decision making literature in accounting. The results of Moriarity and Barron (1976, 1979) question whether the increased complexity of conjoint measurement leads to significant benefits over the simpler ANOVA approach more prevalent in the literature. Finally, Libby (1976b) used a combination of the within-subjects and between-subjects designs to eliminate "demand characteristics" resulting from the former. Demand characteristics often result from the
within-subjects design because knowledge of the experimental manipulation sensitizes the subjects to the experimenter's hypothesis, thereby affecting the response results (Libby & Lewis, 1982).

**Ingredients of a Good Case**

Student surveys have shown that factors enhancing reality and objectivity, such as the inclusion of quotations, document extracts and tables make a case more attractive and interesting to the reader. Factors which reduce brevity (such as a lengthy list of characters), will detract from its interest (Quarmby, 1984).

Another important attribute of successful case studies is to make the problem of interest one that is easily identifiable to the subjects (Andrews & Noel, 1986). Business risk analysis should undoubtedly be of interest to small business owner/managers.

**Effectiveness of the Case Method**

Carroll (1972) conducted a survey of 200 training directors who worked for the companies with the largest numbers of employees as indicated on Fortune's 500 list. This study showed that the case study method was considered an effective training tool. A questionnaire was
utilized which asked the training experts to express their opinions concerning nine different training methods. Opinions were sought on the basis of six training objectives and respondents were asked to score each technique as highly effective, quite effective, moderately effective, limited effectiveness and not effective. The training objectives used in this study were: acquire knowledge, change attitudes, participant acceptance, retention of what is learned, development of interpersonal skills and development of problem solving skills.

The nine techniques about which opinions were requested included the case study, discussion method, lecture with questions, business games, movie films, programmed instruction, role playing, sensitivity training and television lecture. The mean overall rankings rated the case study method the most effective. Case studies were rated first for development of problem solving skills and second to programmed instruction for knowledge acquisition, participant acceptance and knowledge retention. The low ratings for the case study method were in the areas of changing attitudes and development of interpersonal skills.

These rankings indicate that the case study should be an effective tool in solving the problem addressed by this experiment. The purpose of the experiment is
concrete, that is, to establish a training theory for loan defaults using accounting data. Thus, the weaknesses of the case study method, such as improving morale, indicated by the low rankings in changing attitudes and interpersonal skills seem somewhat subservient to the strengths.

A different aspect of the case method may also be considered. All businesses are required to maintain financial records, and thus produce financial statements. Applying the case method to financial statement analysis could be considered a job miniaturization task. Research designed to test the effectiveness of job miniaturization tasks have found that learning is enhanced when the subjects are asked to perform a job-related duty rather than a more general one (Cohen & Penner, 1976). The job miniaturization can thus achieve some of the benefits of on-the-job training (i.e., the sharpened judgement and increased proficiency resulting from performing a duty that is applicable to all small business environments) (Neumann, 1981), and still utilize the case method and its inherent strengths.

In the experimental setting utilized, emphasis was placed on the fact that financial statement analysis is a necessary part of business management. Skill in this area can enhance the small business
manager's understanding of how bankers and creditors view their respective companies.
The primary objective of this study was to determine whether a training intervention, focusing on financial statement risk, could improve the subjects' understanding of financial statements produced by their companies. The primary hypothesis for this experiment, stated in the null form was:

$H_0$: There are no significant differences in financial statement understanding between the control and experimental groups.

Research in psychology suggests that individual difference testing can provide insight into the personal characteristics which contribute to successful task completion. These variables may include attitudes,
demographic information or life history data. As a result, further hypotheses were tested to ascertain what effect, if any, certain individual differences had on financial statement risk analysis and training. These hypotheses stated in the null form are:

H2: The prior management experience of the subject will not affect the posttest scores of the experimental group.

This hypothesis is included as a test of the experience factor in decision-making. As discussed in Chapter Two, a substantial body of research has focused on heuristics as decision-making aids. The work of Arkes and Harkness (1980) suggested that small business owner/managers may tend to overlook anomalies in their financial statements simply because they do not realize what problems these anomalies represent.

The availability heuristic as identified by Tversky and Kahneman (1974) supports this argument. Their work found that decision-makers often rely on a familiar paradigm to interpret and solve problems even though that paradigm may not be appropriate for the particular problem of interest. As a result, hypothesis two was included to determine the effect of experience on financial statement understanding.
H3: The income level of the subject will not affect the posttest scores of the experimental group.

H4: The level of education of the subject will not affect the posttest scores of the experimental group.

The positive relationship between an individual's schooling and his subsequent earnings may be understood to reflect the productivity-augmenting effects of education. Mincer (1974) summarizes this relationship in a human capital earnings model. Correlations between educational attainment, measured in years spent at school, and earnings of individuals, were found to be positive but relatively weak. Mincer then expanded his study to include average earnings over groups of individuals with varying levels of education. This expansion of the theory resulted in strong differences, indicating that level of education as measured by schooling has a strong positive effect on earnings in general.

Mincer's human capital earnings theory provides the basis for hypotheses three and four. Since the success of small business is generally measured by the earnings of the owners, these hypotheses were tested to determine if they likewise would coincide with success in training for financial statement risk identification. Implicit in these hypotheses is the assumption that businesses with a high degree of risk
are more likely to fail. Thus if a business is successful, one may assume that business risk has been minimized. Testing of these hypotheses were included to determine whether successful small business owners could identify risk as presented in their financial statements better than less successful owners.

H5: The ethnic background of the subject will not affect the post-test scores of the experimental group.

Jencks (1979) utilized an elaborate set of studies to measure the effects of race and family background on economic and educational success of individuals. To explain the construct of family background, he suggested the following scenario.

Imagine a set of parents with an infinite number of sons. If their sons earned an average of $16,000 while the average man earned an average of $12,000 we would say that having these particular parents was worth an average of $4,000. This advantage would, of course, reflect not only the effects of the parents themselves, but the effects of the neighborhood in which the parents raised their sons, the schools to which they sent their sons, the economic opportunities available to men in the parent's community.....and many other "nonparental" influences.

The obvious problem is to devise some method to
measure this construct in an experimental environment. Jencks found that a good measure of family background was "father's occupation" or "occupation of parent's head of household" should the family not have a living father. This method was used to gather data for hypothesis number five. Since the mission of the SBA is to provide startup assistance to a broad range of potential entrepreneurs, this hypothesis was included to determine whether family background would impact the posttest training scores of the experimental participants.

Another issue of interest related to hypothesis number five is that of race differences. The Small Business Administration has demonstrated an interest in providing aid to the development of minority-owned businesses. The most recent figures indicated that only about 6.4% of small businesses are minority owned. Of this group, Asian Americans are the most likely to own a business and blacks are the least likely. ("The State of Small Business," 1988). The majority of these businesses are concentrated in the service and retail sectors. Furthermore, the SBA's Report to the President (1988) indicated that black-owned businesses were significantly smaller, both as to number of employees and volume of sales, than were businesses owned by other minority groups.
Several research studies provide insight into these figures. Welch (1977) found that while education in general increased earnings across broad groups of subjects, the effects were significantly smaller for non-white subjects. This study would seem to indicate that non-whites would not perform as well on the training intervention for financial statement risk identification. Winsborough (1975) found that race and family background had an interactive effect. This was manifested in lower academic performance as a result of inadequate vocabulary training for non-white subjects.

Since the loans initiated by the SBA for minority businesses are defaulting at an alarming rate, hypothesis five is included to determine to what extent minorities can be aided by a training program.

H6: Individual difference variables, as reflected by the attitudinal questionnaire, will not affect the post-test scores of the experimental group.

Hypothesis six is included in an attempt to ascertain the possible effect of biographical and attitudinal information as predictors of success in training. A number of authors have researched the individual difference area. A general consensus is that when selecting variables for hypothesis testing, the common sense
approach is most effective (Ryman & Biersner, 1975; Asher & Sciarrino, 1974; Bale & Rickus, 1973; Gordon & Cohen, 1973). For example, Helmreich and Bakemen (1973) found that when testing for success in diving school, results indicated that such variables as parental income, level of education and prior experience in water sports were good indicators of success.

With this in mind, the following attitudinal variables were gathered and analyzed: (1) job motivation, (2) job involvement, (3) dogmatism, and (4) liberalism/conservatism. Job motivation and job involvement were chosen because small business owner/managers often must spend a great deal of time establishing their businesses.

Dogmatism was chosen because training in financial statement analysis may require that some owners change the way they have made decisions in the past. If a particular owner/manager is inflexible by nature, they may not do well in the training simply because they will not choose to utilize the methods taught, relying on their old methods instead.

The liberalism/conservatism measure was chosen because one of the major problems of small business is cash management (Liebtag, 1987). Thus, one might reasonably expect a more conservative individual to be more prudent in that area. Furthermore, Baumgartel and
Jeanpierre (1972) found that "risk takers" were typically more innovative and it seems logical that innovative people would be more likely to start their own businesses than would people who were not innovative.

Another aspect of this type of research that should be considered is the fact that most training measures attempt to capture only final results. For example, in this study, an attempt to measure understanding of risk as exemplified by financial statements is predicated on the fact that the subjects can read financial statements and understand what is meant by the designations "assets," "liabilities," and other accounting terms. This experiment makes no attempt to measure the skills that are necessary, but insufficient in themselves for success as a small-business manager (Atkinson, 1973).

The Research Design

The Pretest/Posttest Design

The study utilized a within subjects design in an effort to reduce error variance. The fact that the entire experiment required only about three hours
to complete helped to minimize the fatigue factor and carry-over effects which are often negatively associated with this type of design.

The design employed in this experiment was the untreated control group design with pretest and posttest (See Figure 1). This design is generally considered to be quite interpretable and controls for all but four threats to internal validity (Cook & Campbell, 1979).

**Internal Validity**

One threat to internal validity uncontrolled by the pretest/posttest design is selection-maturation. A selection-maturation threat arises when the respondents in one group are growing more experienced, tired, bored, etc., than are those in another group (Cook & Campbell, 1979). This threat is not applicable in this training experiment because the entire process took only three hours. Furthermore, both groups actually participated the full three hours as a result of the placebo treatment discussed later. Even though the experimental group was gaining experience, i.e., in financial statement analysis, this was due to the training intervention, thus selection-maturation was diminished as a threat to internal validity.
Figure 1
The Untreated Control Group Design
With Pretest and Posttest

Experimental Group
Training Intervention R 01 X 02

Control Group R 01 02

No Training Received

Where:
0 = Measures of the Dependent Variable
X = The Training Intervention
R = Random Subject Assignment to each Group

Instrumentation can also be a threat to the pretest/posttest design. The instrumentation problem can be partially alleviated by clearly explaining the scales used to subject responses. For example, a Likert-type six point scale was utilized for attitudinal measurement (see appendix C). Subjects were asked to express to what extent they agreed or disagreed with the statements made. Responses could range from: (1) Agree very strongly, (2) Agree strongly, (3) Agree, (4) Disagree, (5) Disagree strongly, (6) Disagree very strongly.

Random assignment of a predominantly homogeneous group removed the threats of differential statistical regression and local history (Cook & Campbell, 1979).
These threats suggest that if the control group and the experimental group were decidedly different in some particular regard, the results of the experiment would be influenced. The intent of this experiment was to generalize only to potential users of SBA loans or loan guarantees. Thus, a subject group consisting of potential loan users was homogeneous enough that these threats should not have affected the experimental outcome. As a control measure, however, a two-stage ANOVA was used to check for selection bias.

External Validity

Campbell and Stanley (1963), suggest that threats to internal validity affect the relative posttest scores of the experimental and control groups. That is, unless the typical threats to internal validity are dispelled, the researcher cannot attribute the changes in pretest and posttest scores to the experimental intervention. Threats to external validity, however, can be termed interaction effects involving the intervention and some other variable. External validity threats "represent a potential specificity of the effects of X to some undesirable limited set of conditions" (Campbell & Stanley, 1963). As a result, if an experiment is internally valid, but
lacks external validity, the results of the experiment are thought to be true, but not useful when applied in other times, settings or subject groups.

It is an unfortunate maxim of experimental research that without certain assumptions no experimental results can be generalized to a group not participating in the experiment. For example, Campbell and Stanley (1963) suggest that:

While complex interactions and curvilinear relationships are expected to confuse attempts at generalization, they are more to be expected the more the experimental situation differs from the setting to which one wants to generalize.

This maxim underscores the importance of designing a case which will be similar to a working situation encountered by the experimental subjects.

As previously mentioned, external validity threats are often the result of an interaction. One threat to external validity results when the pretest affects the treatment. This threat is most often a problem in attitudinal type surveys where the subjects are sensitized to a particular mode of thinking via the pretest. In response to this problem, the attitudinal portion of this study (the secondary hypotheses) did not use a pretest/posttest design. Information was gathered
during the pretest, and the treatment made no attempt to modify attitudes. The attitude dimensions resulting from a questionnaire were simply regressed on the post-test scores of the experimental group in an effort to determine what dimensions were related to training results.

A major external validity threat involves the interaction of selection and treatment. This threat implies that the results gained from the experiment are applicable only to the unique population from which the subjects used were drawn (Campbell & Stanley, 1963). The use of actual members of the small business community greatly reduced the threat of selection and treatment interaction. During the pretest, information was gathered concerning how many of the subjects had ever applied for SBA loans. This was used as a test to determine if there were general differences between subjects who utilize SBA and those who did not.

Explication of Constructs

The primary construct in this experiment was understanding of business risk as evidenced by financial statements. This study contends that a training intervention can improve risk identification and thus, financial statement understanding. This
understanding can then result in more aware management focus, which can potentially reduce loan defaults. In this experiment, the construct of "understanding" meant that increased scores in the posttest were a result of the training intervention. Thus, increasing scores were assumed to mean that understanding was increasing as well. The second portion of this experiment attempted to draw inference concerning the construct of understanding. The regression allowed some interpretation as to what individual differences enhance understanding and which ones do not.

Explication of Variables

The dependent variable in this experiment was subject scores gathered at the pretest and the posttest. These scores were gathered by summing the total correct responses to questions concerning the understanding of a set of financial statements presented to the subjects. The correct responses were determined using a consensus approach.

The independent variables utilized in the experiment were the demographic, attitudinal and personality dimensions gathered from the survey instrument. These results were then converted to variables and regressed on the dependent variable in an attempt to gain inferences as...
to which subjects possessed those characteristics associated with high response scores after the training intervention.

Measurement Scale

Wollack, Goodale, Wijiting and Smith (1971) developed a measurement scale that emphasized people's orientation towards employment in general. They factor analyzed a questionnaire which was administered to 495 employees. This instrument attempted to measure the Protestant Work Ethic. The resulting sub-scale for "upward striving" included nine questions as did the scale for job involvement. Each survey included several negatively scored items to increase reliability.

Schulze (1962) developed a dogmatism scale designed to measure how deeply a person was "set in their ways." The scale takes less than ten minutes to complete and has a total of ten items. The liberal/conservatism scale developed by Shaw and Wright (1967) is designed to measure this dimension on a number of issues including private enterprise. This instrument contained 26 questions, but due to anticipated time limitations at the experiment, only 14 items were included. These included the first seven measures of liberalism and the first seven of conservatism. All questionnaires (Appendix C) were
administered at the beginning of the seminar to all participants in the experiment (see step three, figure four, chapter four).

Subjects were asked to respond to a variety of statements using a six point response scale. The responses ranged from disagree strongly to agree strongly. The Durbin-Watson test was used to check the attitudinal data for normality. It was found to be non-normal. The data were then analyzed using a Spearman Correlation for non-normal data. Using the resulting interitem correlations, the internal consistency method (Cronbach Alpha) was used to determine the reliability of the scales.

Data Collection

Subjects

Subjects for the study were members of the Louisiana Association of Business and Industry (LABI) and clients of the Capital Small Business Development Center. LABI is a political action group headquartered in Baton Rouge, Louisiana. The primary purpose of the organization is to lobby the State Legislature of Louisiana on issues of concern to small business within the state. The membership is a varied mix of small business owner/managers, professional associations and management level
employees of larger businesses. The small business representation accounts for about 60% of the active members within the metropolitan Baton Rouge area. The Capital Small Business Development Center is a quasigovernmental agency funded in part by Southern University and the SBA. The goal of the Capital Center is to provide information and counseling to current and potential small business owners and managers. LABI and Capital publicized the experiment as a free method of educating small business owner/managers in understanding the risk that is apparent via the financial statements of the business. The mailer was followed by phone calls in an attempt to encourage participation and explain the seminars.

Reliability of the Instrument

To assess the effects of the individual difference variables previously discussed on the subjects, a questionnaire was used to gather attitudinal, demographic and personality information. To be an effective research tool, the questionnaire must be a reliable measure of the constructs of interest. Classical test score theory suggests that a measurement of any phenomenon contains a certain amount of error (Carmines & Zeller, 1979).
True test scores are unobservable and can be assumed to be the average score an individual might receive if the experimental measure were repeated an infinite number of times. The observed test score, then, contains some amount of error. As a result, the ratio of the observed score to the true score is called the reliability of the measure X (Carmines & Zeller, 1979). Reliabilities range between 0.00 and 1.00 where 1.00 is a perfectly reliable measure and 0.00 is completely unreliable.

There are generally considered to be four methods of measuring the reliability of an experimental instrument. These include the test-retest method, the alternate form method, the split halves method and the internal consistency method. The internal consistency, often called the Cronbach alpha, was used in this experiment. The coefficient alpha method requires only a single test administration and provides an unique estimate of reliability for that test administration.

The Cronbach alpha may be expressed as:

$$\text{Alpha} = \frac{N}{(N - 1)} \left[ 1 - \frac{\sum \sigma_i^2}{\sigma_x^2} \right]$$

Where $N =$ The number of items  
$\sum \sigma_i^2 =$ The sum of item variances  
$\sigma_x^2 =$ The variance of the total composite

Thus to interpret the reliability, the coefficient alpha
for a test having 2N items is equal to the average value of the alpha coefficients obtained for all possible combinations of items into two split-half tests. Alpha is a conservative estimate of reliability since the resulting coefficient is a lower bound of an unweighted scale of N items (Carmines & Zeller, 1979). Should the alpha coefficient of the questionnaire be low, then questions with a lower interitem correlation can be eliminated to increase the reliability.

**Experimental Intervention**

Experimental procedures usually assess candidates in terms of test scores that serve as predictors of an index of job success which is the performance or criterion measure. This requires an analysis of the abilities of skills required to do the job successfully and then tests are constructed to measure each of the main abilities or skills. In this study, the assumption was made that an understanding of financial statements is necessary for successful small business management.

**Administration of the Intervention**

Members of LABI and the Capital Small Business Development Center were invited to participate in the
experiment through mailings from the respective organizations. Publicity for the experiment centered around the fact that small business owner/managers would receive free information about financial statement analysis which was intended to help them better understand their businesses. As an adjunct to the experiment, a tax update was also offered to the subjects. The tax update served not only as an additional enticement to the subjects, but as an experimental placebo treatment as well (See Figure 2).

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**Figure 2**
The Untreated Control Group Design With Pretest and Posttest Placebo Treatment Added

<table>
<thead>
<tr>
<th>Experimental Group</th>
<th>R</th>
<th>01</th>
<th>X1</th>
<th>02</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training Intervention</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Control Group</th>
<th>R</th>
<th>01</th>
<th>T</th>
<th>02</th>
<th>X2</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Training Received</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Where:
- 0 = Measures of the Dependent Variable
- X1 = The Experimental Training Intervention
- X2 = The Dissemination of Training Information
- T = The Placebo Tax Information
- R = Random Assignment of Subjects

Subjects were randomly assigned to either the experimental or control group upon arrival. The entire experiment was presented in a booklet which contained the pretest financial statements, questions concerning
those statements and the attitudinal, biographical and personality questionnaire. After the subjects had completed this part of the experiment, they were divided into two groups based on the prior random assignment. The control group then received the tax update information, while the experimental group received the training intervention. At the end of these sessions, the posttest was administered. Upon completion of the posttest, the groups were switched so that all participants were exposed to all the information they were promised. Data collected from the tax session will be used for analysis of a different set of hypotheses in a subsequent study.

The tax information helped to encourage attendance at the experiment because most small business people are acutely aware of the changing nature of tax law and its effects on small business. Furthermore, this method enhanced the validity of the experiment since the placebo treatment eliminated hypothesis guessing as a threat to the validity of the study.

Description of the Case

The training case involved two sets of two financial statements each. The case background described one company
which is labor intensive, thus minimizing operating leverage (Company A), and a second company which was capital intensive, thus maximizing operating leverage (Company B). Company B utilized bank borrowing for financing, thus maximizing financial leverage, while company A utilized primarily owner's equity financing, and thus minimized financial leverage.

Bankgrounds on the companies included the fact that both are relatively new, and that both operate in a market place that is relatively stable. Growth is assumed to be slow, but steady, and both are applying for SBA loans for purposes of expansion.

The posttest involved analysis of companies C and D. The financial statements of these companies were identical to companies A and B except for the fact that the size of the companies varied. All relationships remained the same. Company C had the same relationships as Company A, while Company D had the same relationships as Company B. A second questionnaire was then administered asking the subjects to perform the analysis on Companies C and D.
CHAPTER 4

DATA ANALYSIS

This chapter discusses the experimental subjects, the data collection, and the statistical analysis which was introduced in Chapter 3. The topics addressed are: data collection methods, a description of the experimental procedure, a description of the subjects, analysis of the pretest-posttest scores and analysis of the attitudinal and demographic variables.

Data Collection

Experimental Subjects

Subjects of this experiment were active members of the small business community of Baton Rouge, Louisiana. The experiment was conducted in two sessions. The first session was on July 6, 1988 and the second on October 10, 1988.

The July 6 group were members of the Louisiana Association of Business and Industry (LABI). Members
were contacted by placing an announcement in the monthly newsletter that is sent regularly to members. Interested parties were asked to contact the experimenter to indicate their willingness to attend a free small business seminar. Those who responded were told that they would be asked to fill out a set of questionnaires. These survey instruments were used to gather the attitudinal and demographic data for the study.

The respondents were told that the seminar would be held in two parts. One part of the seminar included the training session for financial statement analysis. This section provided the treatment effect for the main hypothesis of the experiment. The second part of the seminar included information about the pending Taxpayers' Bill of Rights Legislation. This section provided the placebo effect for the control group. The potential subjects were told that they would be asked to fill out several survey instruments throughout the evening. The subjects were also told that the seminar was being conducted as part of a doctoral research project and that there would be no charge for the information presented. Thirty-three usable instruments were gathered at the first session.

The second session was held on October 10, 1988. These subjects were contacted through the Louisiana Small Business Development Center. The director of the center
provided a listing of clients for the past two years and a special mailer was sent to them explaining the content of the seminar. Interested members then phoned their registration information directly into the center. This list was used by the experimentor to follow-up with the subjects by phone and explain the purpose of the seminar including the fact that participants would be asked to fill out several questionnaires. The second session provided forty-seven participants with usable responses.

Subject Response

The Louisiana Association of Business and Industry has approximately 500 members within the metropolitan Baton Rouge area. The client list for the Capital Small Business Development Center included approximately 200 businesses.

The increased response interest demonstrated by the Capital Small Business organization may be explained in part by the nature of the group's membership. The Capital Small Business Development Center deals with clients who are either interested in starting a small business or are already working in the small business area. The purpose of Capital is to provide consulting services for business people who need help in any of a variety of
management problems. Thus, the membership of Capital has already identified a need to better understand their businesses. The LABI, however, is primarily a political action group established to lobby the Louisiana State Legislature on issues pertinent to small business. As a result, the membership of LABI may or may not feel a need to improve their management skills.

The two sessions resulted in 80 usable observations. The ANOVA and Kruskal-Wallis tests were utilized to determine if there were any differences in the pretest scores, the posttest scores, or the demographic data between the participants of the July 6 and October 10 sessions. No significant differences were found using a .05 alpha level. This indicated that the groups were homogeneous and thus further data analysis was conducted on the total sample as a whole.

**Experimental Procedure**

At the beginning of the sessions, the experimenter conducted a brief introduction at which speakers for the financial statement analysis session and the tax update session were introduced. This was followed by a brief explanation of the questionnaire booklet which contained...
the demographic and attitudinal surveys. These surveys were administered at this time. The subjects were then randomly divided into two groups using an even-odds approach to a random number list. After the pretest (see appendix A) was administered, the groups were separated for the rest of the evening. The experimental group received a teaching session (approximately one hour in length) on financial statement analysis, while the control group was receiving information on the taxpayer's bill of rights legislation which was currently pending before the United States Congress. Neither of the interventions were administered by the experimenter. Dave Cornell administered the training on financial statement analysis. Mr. Cornell is a Phd. candidate at Louisiana State University. To avoid experimental contamination, Mr. Cornell was never shown the pretest or the posttest. He was only told to prepare a one hour presentation on financial statement analysis for small business concentrating on risk identification. Evelyn Hume administered the training on the Tax Payers' Bill of Rights Legislation. Dr. Hume is a faculty member at Georgia State University specializing in taxation.

While the experimental group was receiving the training session for financial statement analysis, the control group was in another room receiving the tax information. After these initial training sessions were
The posttest (see appendix B) was administered to the experimental group and the tax attitude test was administered to the control group. After a short break, the instructors switched groups. Coffee and donuts were provided in each room to keep the groups from discussing among themselves what had been presented in the other session. After the break, the experimental group received the tax information followed by the tax attitude survey. The control group, however, received the posttest and then the financial statement training information. Figure 3 summarizes the seminar organization.

The Pretest

The pretest consisted of an income statement and a balance sheet for Smith Company and Jones Company (see appendix A). Information was given for the years 1986 and 1987. The Jones Company statements were structured in such a manner as to indicate a high level of leverage, both financial and operating, making that company considerably more risky than the Smith Company. For example, the Jones Company relies more heavily on fixed assets (capital intense rather than labor intense) than does the Smith Company. The Jones Company is also financed by long-term borrowing as opposed to equity.
### Figure 3
Small Business Seminar Organization

<table>
<thead>
<tr>
<th>Step</th>
<th>Experimental Group</th>
<th>Control Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>Introduction of Speakers</td>
<td>Introduction of Speakers</td>
</tr>
<tr>
<td>Step 2</td>
<td>Administer Demographic Survey</td>
<td>Administer Demographic Survey</td>
</tr>
<tr>
<td>Step 3</td>
<td>Administer Attitudinal Survey</td>
<td>Administer Attitudinal Survey</td>
</tr>
<tr>
<td>Step 4</td>
<td>Administer Pretest</td>
<td>Administer Pretest</td>
</tr>
<tr>
<td>Step 5</td>
<td>Split Groups</td>
<td>Split Groups</td>
</tr>
<tr>
<td>Step 6</td>
<td>Financial Statement Training</td>
<td>Present Tax Information</td>
</tr>
<tr>
<td>Step 7</td>
<td>Administer Posttests</td>
<td>Administer Tax Attitude Survey</td>
</tr>
<tr>
<td>Step 8</td>
<td>Coffee Break</td>
<td>Coffee Break</td>
</tr>
<tr>
<td>Step 9</td>
<td>Present Tax Information</td>
<td>Administer Posttest</td>
</tr>
<tr>
<td>Step 10</td>
<td>Tax Attitude Survey</td>
<td>Financial Statement Training</td>
</tr>
</tbody>
</table>
The experimental participants were asked to examine the financial statements of Smith and Jones and answer ten questions relating to those statements. The number of correct responses was used as the pretest score.

The Posttest

After the training intervention was completed, the experimental group was asked to complete the posttest (Appendix B). The posttest consisted of an income statement and balance sheet for Logan and Barnett Companies. These were larger scaled versions of the Smith/Jones statements. Thus, Barnett Company was structured comparable to the Jones Company, while Logan Company was structured comparable to the Smith Company. The respondents were then asked the same ten questions about Barnett and Logan that they were asked about Smith and Jones. The posttest was structured so as to be comparable to the first set of questions in the pretest. The number of correct responses was used as the posttest score. The entire experiment took about three hours to complete.

Description of Subjects

Based on the research in the individual differences
area discussed in Chapters two and three, certain demo-
graphic and attitudinal data was gathered from the
subjects at the time of the pretest. Cronbach (1971)
found that one of the main types of predictor measures
are measures of "typical performance." These typical
performance measures include interests, personality
traits, and demographic factors. Helmreich and Bakeman
(1973) were particularly successful in utilizing demo-
graphic data in the development of their Life History
Questionnaire which was used to predict whether a naval
diver would pass or fail the training course. The
demographic and attitudinal data in this study was
gathered to determine to what extent variation in the
demographics would explain success in training for
financial statement understanding. The variables of
interest were age, income, education level, management
experience, ethnic background, parental occupation, SBA
loan information, as well as whether or not the subject
was currently affiliated with a small business. Exhibits
one through eight summarize this data.

The age, income and ethnic origin categories are
those used by the Small Business Administration on their
application forms. The management experience category
includes experience working for others, as well as
experience obtained while operating an owned business.
The primary occupation of parent's household variable
was included because Jencks (1979) found that this question was a good surrogate for family background. As discussed in Chapter three, family background often has an effect on learning which could manifest itself in lower posttest scores in this experiment.

EXHIBIT 1

Age of Participants

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Number of Participants</th>
<th>Per Cent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>21 through 26</td>
<td>17</td>
<td>21.25</td>
</tr>
<tr>
<td>27 through 32</td>
<td>6</td>
<td>7.50</td>
</tr>
<tr>
<td>33 through 38</td>
<td>16</td>
<td>20.00</td>
</tr>
<tr>
<td>39 through 44</td>
<td>7</td>
<td>8.75</td>
</tr>
<tr>
<td>45 through 50</td>
<td>11</td>
<td>13.75</td>
</tr>
<tr>
<td>51 through 56</td>
<td>11</td>
<td>13.75</td>
</tr>
<tr>
<td>57 through 62</td>
<td>8</td>
<td>10.00</td>
</tr>
<tr>
<td>Over 62</td>
<td>4</td>
<td>5.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>80</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>
## Exhibit 2

### Income of Participants

<table>
<thead>
<tr>
<th>Income Range</th>
<th>Number of Participants</th>
<th>Percentage of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under $5,000</td>
<td>8</td>
<td>10.00</td>
</tr>
<tr>
<td>$5,000 to $10,000</td>
<td>6</td>
<td>7.50</td>
</tr>
<tr>
<td>$10,001 to $15,000</td>
<td>8</td>
<td>10.00</td>
</tr>
<tr>
<td>$15,001 to $20,000</td>
<td>6</td>
<td>7.50</td>
</tr>
<tr>
<td>$20,001 to $25,000</td>
<td>7</td>
<td>8.75</td>
</tr>
<tr>
<td>$25,001 to $30,000</td>
<td>12</td>
<td>15.00</td>
</tr>
<tr>
<td>$30,001 to $40,000</td>
<td>13</td>
<td>16.25</td>
</tr>
<tr>
<td>$40,001 to $50,000</td>
<td>6</td>
<td>7.50</td>
</tr>
<tr>
<td>$50,001 to $75,000</td>
<td>10</td>
<td>12.50</td>
</tr>
<tr>
<td>$75,001 to $100,000</td>
<td>2</td>
<td>2.50</td>
</tr>
<tr>
<td>Over $100,001</td>
<td>2</td>
<td>2.50</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>80</strong></td>
<td><strong>100.00</strong></td>
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</tbody>
</table>
### EXHIBIT 3
**Education Level of Participants**

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Number of Participants</th>
<th>Per Cent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School Dropout</td>
<td>1</td>
<td>1.25</td>
</tr>
<tr>
<td>Completed High School</td>
<td>6</td>
<td>7.50</td>
</tr>
<tr>
<td>Some College</td>
<td>30</td>
<td>40.00</td>
</tr>
<tr>
<td>Bachelor's Degree</td>
<td>14</td>
<td>17.50</td>
</tr>
<tr>
<td>Post Bachelor's Work</td>
<td>5</td>
<td>6.25</td>
</tr>
<tr>
<td>Graduate Degree</td>
<td>22</td>
<td>27.50</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>80</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

### EXHIBIT 4
**Management Experience of Participants**

<table>
<thead>
<tr>
<th>Experience</th>
<th>Number of Participants</th>
<th>Per Cent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than One Year</td>
<td>21</td>
<td>26.25</td>
</tr>
<tr>
<td>1-2 Years</td>
<td>10</td>
<td>12.50</td>
</tr>
<tr>
<td>2-5 Years</td>
<td>15</td>
<td>18.75</td>
</tr>
<tr>
<td>5-10 Years</td>
<td>12</td>
<td>15.00</td>
</tr>
<tr>
<td>10-20 Years</td>
<td>13</td>
<td>16.25</td>
</tr>
<tr>
<td>Over 20 Years</td>
<td>9</td>
<td>11.25</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>80</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>
### EXHIBIT 5
**Ethnic Background of Participants**

<table>
<thead>
<tr>
<th>Ethnic Background</th>
<th>Number of Participants</th>
<th>Per Cent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latin</td>
<td>2</td>
<td>2.50</td>
</tr>
<tr>
<td>Black</td>
<td>29</td>
<td>36.25</td>
</tr>
<tr>
<td>Caucasian</td>
<td>46</td>
<td>57.50</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>3.75</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>80</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

### EXHIBIT 6
**Primary Occupation of Participant's Parents**

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Number of Participants</th>
<th>Per Cent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Owner/Manager</td>
<td>17</td>
<td>21.25</td>
</tr>
<tr>
<td>Professional</td>
<td>15</td>
<td>18.75</td>
</tr>
<tr>
<td>Supervisor/Foreman</td>
<td>10</td>
<td>12.50</td>
</tr>
<tr>
<td>Teacher</td>
<td>6</td>
<td>7.50</td>
</tr>
<tr>
<td>Clerical</td>
<td>2</td>
<td>2.50</td>
</tr>
<tr>
<td>Laborer</td>
<td>18</td>
<td>22.50</td>
</tr>
<tr>
<td>Unemployed</td>
<td>2</td>
<td>2.50</td>
</tr>
<tr>
<td>Other</td>
<td>10</td>
<td>12.50</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>80</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>
Information was also gathered to determine if the participants had applied for or received SBA loans in the past. Very few participants had SBA experience. Only 3.75% had applied for an SBA loan in the past, while still less (2.5%) had ever been granted a loan. The majority of the participants (67.5%) either owned or worked for a small business at the time of the experiment.

Analysis of the Main Hypothesis

The SBA has taken the position that the best method of implementing help for small business loan applicants is through printed literature and advice from SCORE and ACE volunteers.

The premise of this study was to suggest that a training intervention covering financial statement analysis would help small business owner/managers better understand their businesses.

The pretest/posttest design with control group was used to test the primary hypothesis. Although a number of statistical methods are available with which to address the problem of separating the effect of the treatment from the effect of selection differences, this experiment initially utilized analysis of variance (ANOVA).
Analysis of Variance

ANOVA specifies three components which determine the level of posttest responding. The first is the grand mean of the posttest scores across all individuals, a value that serves to locate the average response on the measurement scale in question. The second is the treatment effect, which is the average value that the treatment adds to, or subtracts from, the posttest scores in the treatment group. The third is the error or residual, which represents the effects of all other factors that contribute to differences between the scores (Cook & Campbell, 1979).

In an effort to determine the applicability of a parametric measure (ANOVA), some basic assumptions were examined and tested. Most parametric statistical methods require that output scores are based on either an interval or ratio scale. The output scores of the pretest and posttest are ratio scale, that is one can assume that a posttest score of 8 would indicate twice the level of knowledge of financial statements than would a posttest score of 4.

Normality Tests

ANOVA further assumes that the data is normally...
distributed and that error variances are equal. Although ANOVA is deemed to be relatively robust against non-normality, a test for normality was run as a cross check. The Durbin-Watson test indicated that neither the pretest, the posttest, nor the gain scores were normally distributed. The null hypothesis of normally distributed error terms was rejected for all three variables at the .05 alpha level. An examination of the normal probability plots and the stem and leaf plots confirmed this.

Often nonnormality and unequal error variances occur together. This being the case, the same transformation can sometimes correct both problems (Neter, Wasserman & Kutner, 1985).

In an attempt to find the best transformation, the Box-Cox method was employed (Box & Cox, 1964). This methodology tests for the best natural log transformation, as well as the best exponential transformation. The results indicated that an exponential transformation would be most beneficial. All variables were then transformed using .8 as the exponent. The Durbin-Watson test was then rerun to determine the effects of the Box-Cox transformation. All variables were still non-normal. Comparison of the posttest and pretest scores of the control group resulted in some negative numbers, i.e., the scores on posttest decreased compared to the
scores on the pretest. Because of this, several linear transformations were attempted, but the result was still nonnormality. Because no method of transformation could be found, both parametric and nonparametric tests were run on the data.

Nonparametric Test

The Wilcoxon nonparametric test was used to analyze the data in addition to ANOVA. The Wilcoxon test is appropriate for testing whether two samples from the same population are significantly different. (Conover, 1982). In this experiment, Wilcoxon was used to determine whether the pretest and posttest scores were significantly different between the experimental and control groups. The use of Wilcoxon requires that the data be ranked prior to analysis, so all results hereinafter reported were performed on ranked data.

Statistical Test Results

A total of 83 participants filled out the pretest and posttest information. Two of the questionnaires were incomplete and one had multiple answers. Thus, the data analysis was performed on a sample size of 80 with 40 in each group. Exhibit 7 shows the results of
these tests.

---

**EXHIBIT 7**

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Type of Analysis</th>
<th>Test Statistic</th>
<th>Probability Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group</td>
<td>ANOVA</td>
<td>F = 4.06</td>
<td>0.0473</td>
</tr>
<tr>
<td>Group</td>
<td>Wilcoxon</td>
<td>Z = 2.16</td>
<td>0.0308</td>
</tr>
</tbody>
</table>

**Posttest Results**

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Type of Analysis</th>
<th>Test Statistic</th>
<th>Probability Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group</td>
<td>ANOVA</td>
<td>F = 50.15</td>
<td>0.0001</td>
</tr>
<tr>
<td>Group</td>
<td>Wilcoxon</td>
<td>Z = 5.08</td>
<td>0.0000</td>
</tr>
<tr>
<td>Group</td>
<td>ANCOVA</td>
<td>F = 27.59</td>
<td>0.0001</td>
</tr>
</tbody>
</table>

**Pretest Analysis**

A preliminary analysis was performed on the pretest scores in an effort to make certain that selection bias did not contaminate these scores. The null hypothesis at this stage was that there would be no difference between the experimental and control groups. If the null is rejected then one must assume that the groups are different on some dimension and selection bias cannot be ruled out.

The results of the ANOVA are shown in Exhibit 7. The p-value of 0.0473 indicates that the null hypothesis of no difference between the groups on the pretest scores is rejected at the .05 level of significance.
The Wilcoxon nonparametric test was used as a cross check. The results of the Wilcoxon test are shown in Exhibit 7. These results are similar to ANOVA in that the p-value of 0.0308 indicates that the null hypothesis should be rejected.

These analyses suggest that the two groups differ on some dimension that has affected the pretest scores. As a result this original difference in financial statement understanding must be considered when analyzing the post-test scores.

Posttest Analysis

The null hypothesis in analyzing the posttest scores is that there will be no difference between the scores of the experimental and control groups. If the null hypothesis can be rejected, one can assume that the experimental treatment resulted in this difference.

The results of the ANOVA and Wilcoxon analyses are shown in Exhibit 7. The very low p-values are consistent for both ANOVA and Wilcoxon. Both analyses suggest that the null hypothesis of no difference in posttest scores can be rejected (p-value is less than .05).

The next step in the analysis is to determine whether the difference in posttest scores is caused by
a selection bias. To implement this test, Analysis of Covariance (ANCOVA) was used. The results of the ANCOVA are shown in Exhibit 7. The pretest scores were used as a covariate to analyze the posttest scores. The null hypothesis of no difference can be rejected (p-value is less than .05). This indicated that even though there may have been some selection bias within the pretest scores, the posttest scores were significantly different even when the selection bias has been removed from the analysis.

The pretest mean score for the experimental group and control group were 2.63 and 2.78 respectively. The posttest adjusted means were 3.09 and 5.98 indicating the understanding of financial statements increased almost twofold for the experimental group. The increase in the control group scores is probably attributable to either regression or a testing influence.

Implications of Results

The results of the pretest and posttest score analysis would seem to support two very important conclusions. First, apparently selection bias exists within the pretest scores. The null hypothesis of no difference between groups was rejected at the .05 level of significance using both ANOVA and Wilcoxon procedures. Applying
ANCOVA, however, eliminated the effects of differing prior knowledge of financial statements and allowed a clear interpretation of the posttest results.

The second conclusion which may be drawn is that the training intervention actually helped the participants to better understand the financial statements in the case study. This is indicated by the rejection of the null hypothesis of no difference in posttest scores between the experimental and control groups (p-value is less than .05).

**Analysis of Attitudinal Variables**

In an attempt to explain the reasons why some people benefited more from the training than did others, the group of attitudinal and demographic variables were analyzed. All attitudinal questionnaires were validated by using scales developed and tested by authors in the field of psychology.

There is a strong attraction to a classic strategy of using factor analysis to analyze skills into single and basic dimensions, then patterning the single dimensions into a composite with a linear combination using a statistic such as regression. This is mediator theory which assumes that criterion behavior is controlled or determined by generalized mediators such as traits,
aptitudes or intelligence. (Asher & Sciarrino, 1974). The problem then, is to measure the general mediators.

In this experimental setting job involvement, job motivation, dogmatism and liberalism/conservatism were tested in an attempt to explain success in the training environment. In an attempt to maximize the reliability of these attitude measures, prevalidated scales were used.

Instrument Reliability

There are generally two methods of increasing the reliability of a measurement scale. The first is to eliminate questions that have a low interitem correlation with other items in the subscale. The second is to add more questions that the researcher feels will measure the construct of interest (Carmines & Zeller, 1979). Because the training experiment was only administered to each subject once, the second method was not possible to implement in this study, and therefore, the first method was used. The questions used to measure these constructs may be found in Appendix C. The results of the analyses of the subscales appear in Exhibit 8. This exhibit shows the number of questions dropped from the prevalidated measurement scale due to low interitem correlation. The reliability of the subscale was calculated using the Cronbach Alpha method.
As discussed in Chapter 2, the choice of which attitudinal measures to utilize in a study is often based on intuition (Asher & Sciarrino, 1974; Ryman & Biersner, 1975; Finch, 1971). Small business owners usually work long hours and must be very involved in their businesses in order for them to succeed. Thus, motivation, as measured by the upward striving scale, and job involvement might carry over into the training session and correlate with success in training.

---

**EXHIBIT 8**

**Reliability of Attitudinal Subscales**

<table>
<thead>
<tr>
<th>Scale</th>
<th>Number of Questions Dropped</th>
<th>Reliability of Subscale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dogmatism Scale</td>
<td>3</td>
<td>.22</td>
</tr>
<tr>
<td>Liberalism Scale</td>
<td>1</td>
<td>.33</td>
</tr>
<tr>
<td>Conservatism Scale</td>
<td>2</td>
<td>.36</td>
</tr>
<tr>
<td>Upward Striving Scale</td>
<td>2</td>
<td>.37</td>
</tr>
<tr>
<td>Job Involvement Scale</td>
<td>4</td>
<td>.33</td>
</tr>
</tbody>
</table>

---

One can also argue that strong scores in either liberalism or conservatism might relate to business success. Since small business is considered risky by most financial institutions, one might necessarily be somewhat of a "risk taker" to enter the small business world.
Conversely, one of the major causes of small business failures has been an inability to manage cash and one might expect a conservative to be more cash prudent, and thus more successful. The dogmatism scale was incorporated because it has been successfully used in accounting before to measure decision-maker's flexibility (Weber, 1978).

The first step in analyzing the attitudinal variables was to correlate them to the gain scores. Gain scores were computed by subtracting the pretest scores from the posttest scores of each subject. The Spearman Correlation for nonnormal data was used. The results of this correlation are shown in Exhibit 9.

<table>
<thead>
<tr>
<th>Variable Tested</th>
<th>Correlation with Gain</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dogmatism</td>
<td>.06990</td>
<td>.6682</td>
</tr>
<tr>
<td>Job Involvement</td>
<td>.33052</td>
<td>.0372</td>
</tr>
<tr>
<td>Upward Striving</td>
<td>.08836</td>
<td>.5877</td>
</tr>
<tr>
<td>Liberalism</td>
<td>.05943</td>
<td>.7157</td>
</tr>
<tr>
<td>Conservatism</td>
<td>.18511</td>
<td>.2528</td>
</tr>
</tbody>
</table>

Given the low reliability of the attitudinal subscales
in this administration and the inherent weakness of gain score analysis, it is not surprising that the correlations appear weak. In an attempt to determine how much of the gain in financial statement understanding was attributable to the attitudinal variables, however, regression was employed. Regression is used in an attempt to draw causation inference from data. Regression analysis is a statistical technique which suggests that the relationship between two or more variables is such that one can be predicted from the other (Neter, Wasserman & Kutner, 1985).

The general model for regression with one dependent variable and numerous independent variables is as follows:

\[ Y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_{p-1} x_{p-1} + e_i \]

Where:

- \( \beta_0, \beta_1, \ldots, \beta_{p-1} \) are parameters
- \( x_1, \ldots, x_{p-1} \) are constants
- \( e_i \) are independent
- \( i = 1, \ldots, n \)

In this application the dependent variable was gain score, while the independent variables were the attitudinal variables. Both stepwise and forward elimination procedures were employed. Job involvement, was the only variable that was significant at the .05 alpha level for entrance into the model. This variable accounted for 9.9% of the variance.
The demographic variables were gathered in an attempt to explain why some subjects did better in the training session than did others. Demographic variables have proven to be good predictors in a number of research settings (McEvoy & Cascio, 1989; Harrison & Hulin, 1989; Fleishman, 1988). This analysis is particularly important since the SBA keeps demographic data on applicants and makes special effort to accommodate minorities. The minority loans that the SBA has made in the past, however, have the highest default rate of any class of loans or guarantees that the SBA services.

The Kruskal-Wallis test was used to analyze the demographic data. This nonparametric method was employed since the data was nonnormal and Kruskal-Wallis has more power than Mann-Whitney or Durbin-Watson when the independent variables have more than one level. The test statistic of interest in the Kruskal-Wallis test is a Chi Square approximation. Each variable was tested to see what effect, if any, that variable had on low reliability. A summary of the test results appears in Exhibit 10.
As indicated above, the data suggests that none of the demographic variables significantly influenced the gain scores of the participants. Exhibits 1-6 indicate that the subjects of the experiment represented a wide variety of ages, income, management experience and ethnic background. In an experimental setting, however, gain score analysis is generally less precise than other statistical methods (Cook & Campbell, 1979). This coupled with the low reliability of the attitudinal subscales in this administration may be the reason no significant relationships were found in this study.
CHAPTER 5

CONCLUSIONS

This section summarizes the research study and discusses the implications of the findings. The limitations of the study are also addressed and some suggestions for future research are introduced.

Summary of the Study

The economic base of the United States has undergone considerable change throughout the 1970's and 1980's. The service sector has experienced considerable growth while the manufacturing sector has remained stagnant. This change has been fueled by rapid technological advances in the communications and electronics fields. These areas, along with many others, provide excellent opportunities for the success of small businesses as opposed to large manufacturing operations.
Importance of Small Business

Some recent figures indicate the overall importance of the small business sector. Over the last ten years, small business has provided about two-thirds of the ten million new jobs created in the United States. Likewise, small business now provides about 41% of the total employment, and produces about 26% of the gross national product (Liebtag, 1987). These statistics indicate that the future of small business is promising and that every effort should be made to encourage the success of potential entrepreneurs. The Small Business Administration (SBA) is the primary governmental source of aid for those wishing to enter the small business area or those simply needing expansion capital.

Characteristics of Small Business

Even though each small business is unique, some generalizations can be made. Most entities are owner managed, having few decision-makers, and relying heavily on outside advice for legal and accounting matters. Most small businesses are undiversified and are often weak in the area of long-term planning. While the majority of small business owner/managers are experienced in their particular field, most indicate a weakness in
understanding their financial statements, as well as the concepts of leverage and cash flow predictions.

Over sixty percent of small business owners are borrowers. This is partially due to the fact that financing alternatives are limited for single owners. Furthermore, small businesses often begin their existence under-capitalized. As a result, many depend on the Small Business Administration for either direct loan assistance, or loan guarantees from participating local banks.

Even in an economic environment conducive to growth, many small businesses are not successful. It is natural that a fledgling business identifies growth as a primary measure of success. Only about 15%, however, actually achieve substantial growth (Collins, 1987).

The Research Study

This research study was designed to determine if training of potential recipients of SBA loans in financial statement analysis could help small business owners better understand their financial statements. Better understanding will allow small business owners to identify financial statement risk within their own businesses. The ultimate long-term result should be a reduction in loan defaults.
The SBA environment was used in this research study for two reasons. The first is that SBA can provide a control element for future research since the guidelines for acceptance or rejection of an SBA loan or guarantee are generally straightforward and applicable across all businesses and applicants. The second is that this experiment can serve as a theory development exercise for initiating a time series study with actual SBA clients.

The role of the SBA is to help in the development and growth of small business by providing financial assistance. As the small business sector becomes more important to the economic health of the country, the demands for this service should increase. The current track record of SBA is not impressive. The direct loan program has experienced default rates as high as 38%. In recent years, Congress has actually considered abolishing the SBA altogether. Thus, it would appear that some method of improving the success rate of the SBA should be investigated.

Historically, accounting studies of loan defaults have been lender oriented. Often a discriminant analysis approach has been utilized which involved a regression model that used ratios or other financial statement data as inputs. This financial information was then used as a predictor to determine whether a particular company
would fail or succeed. A lending institution could use the output to either reject a potential loan or restructure an existing account to reflect the additional risk as indicated by the model.

The point of view of this research study, however, is borrower oriented. The assumption is that if small business owners can identify their own company's risk, they are more likely to avoid a financially distressed situation. This can benefit the SBA, as well as the business owners themselves.

The Financial Accounting Standards Board in their Statement of Financial Accounting Concepts Number 2, suggested that the overriding criterion by which accounting choices can be judged is that of decision usefulness. The link between decision usefulness and the new financial data (financial statements) is understanding. If the recipients of financial statements (business owners/managers) do not understand what the statements represent, those statements cannot be helpful in making correct decisions regarding their companies. Since many small business owners profess to have an incomplete knowledge of financial accounting, it is likely that they will make incorrect decisions unnecessarily.

Libby (1981) has suggested that there are three ways to improve financial decisions. These include:
(1) Changing the information provided to the decision-maker; (2) Replacing the decision-maker with a model; and (3) Educating the decision-maker. The approach of this research study involved the third method. A pre-test/posttest design with control group was utilized to measure the effects of an accounting training intervention.

Results and Implications

The main hypothesis was analyzed using an untreated control group design with pretest and posttest. Since the subjects were randomly assigned to either the experimental or control groups, most threats to internal validity can be dispelled. The threats which cannot be eliminated are diffusion or imitation of treatments, compensatory equalization, compensatory rivalry, demoralization and a selection/maturation interaction (Cook & Campbell, 1979).

The experimental and control groups were kept separated after the pretest had been given. Thus, it was not possible for the control group to have received the information (training) that was intended for the experimental group. This would eliminate the threat of diffusion of treatments. The other threats do not apply to an experiment of this type.
Primary Hypothesis

Even with these controls, the pretest analysis was difficult to interpret. The p-values which resulted from the pretest analysis were such that differences between the experimental and control groups were apparent. Thus, analysis of covariance was used to remove that difference. The pretest involved ten questions about a set of financial statements. The questions were comparable to a first year college level course in managerial accounting. The mean scores (average number of correct responses) on the pretest were quite low, 2.63 for the control group and 2.78 for the experimental group. This indicates that the subjects did not have a high level of knowledge concerning financial statements prior to the experiment. A large number of the participants (27.5%) had over ten years of management experience. The fact that the pretest mean scores were still low, indicates that many of the participants are relying on outside help for financial information or do not understand their financial statements well enough to utilize the information presented therein. This supports the statistics reported in Chapter one (Liebtag, 1987).

The posttest scores were analyzed using both parametric and nonparametric procedures. The results were
the same under all analyses. The null hypothesis of no
difference between group scores was rejected at the .05
level of significance. Thus, the data suggests that the
training intervention resulted in better financial state-
ment understanding for the experimental group. The
adjusted mean score for the experimental group, which
received the training, was 5.98 while the mean score for
the control group was 3.09. While the difference was
significant at the .05 alpha level, neither score is still
very high. This is to be expected due to the necessarily
short duration of the training intervention. Of interest,
however, is the significant finding that understanding
could be increased in such a short time.

Secondary Hypotheses

Several attitudinal variables were also analyzed
in an effort to determine what effect, if any, indivi-
dual characteristics might have on subject's ability
to learn from the intervention. Dogmatism, job
involvement, motivation and liberalism-conservatism
were analyzed. The data suggested that the only one
of these which significantly effected the posttest
scores was job involvement. This coincides with the
fact that small business owners must often work long
hours to nourish a new company, and that many owners
must become heavily involved with their jobs in order for the business to succeed.

An analysis of demographic variables, including ethnic background, age, income, education and management experience, showed no difference across a broad spectrum of variables. This was unexpected since a large number of participants (33.75%) reported that they had received at least some education in addition to a college Bachelor's Degree. Information on the type of degree received was not compiled and that information might have been useful. The fact that none of these variables affected the training results does indicate that a training session of this type is successful across a wide variety of subjects. This lends credence to the potential of using required training as an aid in helping small business owners better understand their financial statements.

Neither age nor management experience proved to be good indicators of an ability to understand financial statements. This supports the previous work in the field (Arkes & Harkness, 1980; Einhorn & Hogarth, 1978; Ashton & Ashton, 1988) concerning suppression bias. Both of these studies found that decision-makers selectively ignore information that is difficult to understand. Furthermore, once a decision model has been mentally established, humans are more likely to falsely recognize cues that fit into their preselected paradigm (Arkes & Harkness, 1980).
Apparently, members of the experimental group disregarded information found in the financial statements they did not understand and based their opinions and decisions on other information. For example, the concept of leverage is probably more difficult to understand than the concept of liquidity. Thus, if one does not understand leverage, one may base their risk decisions (or answers) on liquidity measures even when the situation calls for an answer based on leverage.

This is in contrast to the analysis of the attitudinal variables where it was found that high scores on a dogmatism scale had no effect on the gain scores. One would expect some negative correlation between dogmatism and gain scores which would support the suppression bias theories. Perhaps one reason for this finding is that the dogmatism scale utilized, which had a reported reliability of .83, had the lowest reliability on this administration of any of the attitudinal variables (.22). This is low. This may be partially due to the fact that the scale was developed in 1962, and the questions seemed somewhat out-of-date.
Limitations of the Study

The study was conducted in a laboratory setting. As with most behavioral experiments of this type, the environment was somewhat contrived in that subjects were asked to perform a task which would normally take place in their own offices. Furthermore, it is not known for certain that financial statement analysis was a normal job task for these participants. For example, a manager may have his bookkeeper analyze the statements, or they may use a CPA firm to prepare and analyze the statements. The laboratory setting increases the internal validity of the experiment, but may limit the findings in other areas.

Transfer of Training

As mentioned earlier, the training treatment was limited to approximately one hour in an effort to keep the experimental time down to three hours. Given the fact that a placebo treatment was utilized, two tests were given, and the attitudinal questionnaires and demographic data were drawn, it was not possible to extend the training for more than one hour. This is a small amount of time to devote to financial statement analysis. The question then becomes to what extent the
information received will remain in the minds of the recipients.

Transfer of training requires more than remembering what is learned. In order for a training intervention to be successful, the subjects must apply the newly learned information in their home environments. Thus, if the small business owners do not use what they have learned and apply it to their own companies, no practical results will have been obtained.

Research indicates that small business owners who use some set method for analyzing their own financial statements are more successful than those who do not. Slavin and Armen (1962) analyzed 518 small businesses. They ranked them according to profitability. Only three above the median failed to utilize some sort of ratio analysis to analyze their financial statements. Slavin and Armen's study would lend support to the contention that understanding of financial statements helps to reduce risk and thus improve success as measured by profitability.

Hartman and Sumners (1983), found that the effects of training can be transferred to the workplace. They found that the auditors who received information concerning the Foreign Corrupt Practices Act were more likely to incorporate audit techniques in their audit programs which specifically searched for violations of
the act than did those who did not receive the training. This lends support to the contention that a better understanding of financial statements can lead to risk reduction by small business owners.

Though the experiment found that the experimental group was better able to understand the case study financial statements after the training, there was no way to insure that the newly learned information will be utilized by the participants after the training session. In an actual SBA setting, however, this problem could be mitigated by requiring the loan recipients to report certain information to the agency. This could simply be an addendum to the normal financial statements that are already required.

This reporting could serve a dual purpose. It could not only emphasize to the loan holder that the SBA considers this information to be important, but the business owner/manager will have to be aware of such things as liquidity position, operating leverage and financial leverage in his own business as well. This information can only help the owner/manager to better understand his own business.

**Experimental Questions**

Several issues that relate to the experimental
treatment bear scrutiny. The case used to administer the experiment was necessarily short. Furthermore, the case involved service businesses because those are generally more easily understood. Using a service business eliminates the need to explain cost of goods sold, inventory pricing methods and other more complex topics associated with merchandising firms.

Entrepreneurs have a tendency to specialize. For example, if an entrepreneur is operating a bakery, he may understand the financial statements of a bakery, but not be able to transfer that knowledge into a different setting. The small business environment is very diverse, and it would not be possible to provide information familiar to all participants in an experimental setting. Randomization corrects this problem of selection bias from an experimental perspective. From a practical perspective, though, one should probably structure the training intervention to conform to the expected audience. This would probably increase the raw posttest scores.

A second issue involving the experiment is that of subject motivation. Many psychologists believe that humans perform better when there is a reward for good performance. In this experiment, subjects were asked to give up an evening to participate with their only reward being the receipt of information. One might
expect that by the time the posttest was administered (9:30 p.m.), the subjects might not really care whether or not they did well. This maturation effect could also explain the relatively low raw posttest scores.

External Validity

External validity is the extent to which experimental results can be generalized across types of persons, settings and time (Cook & Campbell, 1979). One method of achieving a high degree of external validity is random selection of subjects. This method was not available in this experiment since the subjects self-selected themselves. That is, a large number of potential subjects were contacted and those interested in participating registered for the seminar. As a result, there are certain broad selection bias attributes that cannot be eliminated as threats to external validity. For example, one would expect those small business owners who are highly motivated and involved in their jobs to be willing to come to the seminar.

External validity, however, must be modified by the intent of the experiment. The results of this experiment were not intended to be applicable across all populations, but rather to a targeted group of
current and potential small business owner/managers. The fact that the subjects were associated with small business increases the external validity in this area. Furthermore, the demographic variables showed no effect on the gain scores, thus allowing these results to be generalized across a wide spectrum of the targeted population.

Suggestions for Future Research

The findings of this experiment suggest some avenues for future research in the area of small business. The most obvious extension of this experiment would be a time series study using actual SBA loan applicants and recipients. This experiment could test various types of training methods for relative effectiveness, as well as the overall test to determine whether or not a series of training interventions would help small business owners to better understand their financial statements. The time series approach would allow comparison between the relative profitability, as well as success or failure of companies that had received training to those that had not.
Extending the Research

The intent of this experiment was to create a study that could conceivably be transferred to an SBA working environment. For this reason, one should utilize a methodology that would consider the practical questions that would arise should the study be extended into a true SBA lending situation.

In an attempt to determine the nature of the training that should be required in a true work environment, one should address three questions from a theoretical standpoint: (1) At what stage of the loan process should training be administered; (2) What should be the content of the training, in terms of what a prospective borrower must learn to improve his management skills; and (3) Who should receive the training (Wexley, 1984).

The extended study would assume that actual SBA applicants be utilized, and the training would take place after the loan has been formally approved, but before granting of the actual approval papers. Thus, recipients would realize that their loans have been approved, and some additional motivation would be attached to their success in the training program. Although it cannot be assumed that poor performance in the training program would cause the loan to be denied, perhaps the fact that the actual cash has been promised,
but not received would increase the participation in the program and also increase the effort put forth by the subjects.

Another justification for including the training at this time lies in the fact that the longer the gap between learning and doing, the greater the chance to forget newly acquired skills and information (Quarmby, 1984). Thus, administering the training just prior to the loan disbursement should enhance the transfer of training into the job environment.

Although the crux of the training would be targeted for new loan recipients, the training should include all loan applicants who have been approved for a loan or loan guarantee.

Other Applications

Although this research addresses a specific point of knowledge for potential SBA recipients, a number of peripheral issues may also bear study in the area of small business loan defaults. Dittrich (1975) suggests that the first step in management development is to determine the current capabilities of potential managers. Psychological inventories could be used to investigate this area. For example, how important to the success of small business are the attributes of
leadership, creativity, drive, etc?

Perhaps aid to small business should not be implemented by formal training at all, but should utilize outside experts as mentors (Gray, 1986) or accept small businessman into large companies to utilize their in-house training programs (Gayton, 1978; Engle, 1984). The current approach which utilizes SCORE/ACE volunteers has not been effective as evidenced by the fact that the rate of SBA loan defaults remains high (United States Government, 1988).

Findings indicate that many small business owners are overly dependent on the balance of the cash account in assessing the company's success. An interesting approach to financial statement analysis would be to ask questions about a certain set of financial statements and then ask the small business owners what information they actually used to make their answer selection. This would further the work of Einhorn and Hogarth in attempting to understand the financial decision-making process of the small business owner.

Of further interest would be to investigate the extent to which small business owners depend on their CPA's to make financial decisions for them. Since it appears they do not thoroughly understand their financial statements, they must be relying on outside
sources to help them make decisions. Who are these outside sources? They could possibly be bankers, lawyers, financial consultants, or CPA's. It would be interesting to determine which professionals are consulted on a variety of problems.
REFERENCES


Mock, T. J., & Turner, J. L. (1979). The effect of changes in internal controls on audit programs, in Burns, T. J. (Ed.) Behavioral Experiments in Accounting II (Columbus, OH: College of Administrative Science, Ohio State University).


Attached, please find two sets of financial statements; one for Smith Company and one for Jones Company. Both companies are closely held family corporations, managed by the principal shareholder. Both are service businesses and do not differ markedly in their financial reporting practices, i.e., both value inventory using FIFO, both use Straight Line Depreciation.

Both companies are approximately 5 years old, and both managers are in their mid 30's, having opened their own business as a result of experience gained as junior executives in other firms. Neither Mr. Smith nor Mr. Jones have extensive accounting knowledge (6 college hours).

Mr. Smith's service is unique in the market place, competing for a small segment with specialized needs. His record keeper is a college graduate who has a degree in business administration. He hires a local CPA firm to file quarterly payroll reports, close the books annually and file tax returns.

Mr. Jones' service competes with larger firms in the market place and is thus operated at a higher level. His record keeper is also a college graduate in business administration. He does not employ a CPA.

Using the above information and the financial statements attached, please express your opinion as to the following: Assume that each situation is independent of all others. You may remove the financial statements if you would like to make analysis easier (p. 151 and 152).
(1) Considering the change in liquidity of the two companies over time, which statement do you feel is most accurate?

_____ (a) Smith is becoming more risky over time
_____ (b) Jones is becoming more risky over time
_____ (c) Both firms are becoming more risky over time
_____ (d) Both firms are becoming less risky over time

(2) Assuming an unforeseen expense of $20,000 befalls each company, which company do you feel will best be able to meet this obligation?

_____ (a) Smith Company because it is generating more cash
_____ (b) Jones Company because it is generating more cash
_____ (c) Smith Company because its profit is higher
_____ (d) Jones Company because its profit is higher

(3) Considering the fact that Smith Company would like to expand, would you recommend that they:

_____ (a) Finance expansion by issuing more stock
_____ (b) Finance expansion by borrowing more money
_____ (c) Hold off expansion until it can be financed from retained earnings
_____ (d) Finance expansion by merging with another firm
_____ (e) Utilize a combination of stock issues and borrowing

(4) Economic conditions in the area where Smith and Jones operate indicate that business may slack off considerably. As a result, both companies are considering reducing their labor force by laying off some workers. Would you expect this strategy to be:

_____ (a) More effective in maintaining current profits for Smith Company
_____ (b) More effective in maintaining current profits for Jones Company
_____ (c) Not very effective in maintaining profits for either company
_____ (d) Considerably effective in maintaining profits for either company
(5) Business conditions in the industry in which Smith and Jones operate has been improving steadily. Recently, an event has taken place which promises to increase business by a marked degree. Do you feel that this change will:

_____ (a) Increase Smith's profits more than Jones'
_____ (b) Increase Jones' profits more than Smith's
_____ (c) Increase both company's profits by about the same amount
_____ (d) Increase sales, but have little effect on profits of either company

(6) Considering the fact that Jones Company would like to expand, would you recommend that they:

_____ (a) Finance expansion by issuing more stock
_____ (b) Finance expansion by borrowing more money
_____ (c) Hold off expansion until it can be financed from retained earnings
_____ (d) Finance expansion by merging with another firm
_____ (e) Utilize a combination of stock issues and borrowing

(7) A leading economist with the Wall Street Journal has issued a forecast which suggests an economic downturn in the industry in which Smith and Jones operate. Would you expect this downturn to:

_____ (a) Have a more negative effect on Smith than Jones
_____ (b) Have a more negative effect on Jones than Smith
_____ (c) Have an equally negative effect on both
_____ (d) Have no effect on either company
_____ (e) Have a positive effect on both companies
(8) In assessing relative risk between Smith and Jones, the most useful observation would be that:

- (a) Jones Company's current assets are increasing
- (b) Smith Company's inventory level is declining
- (c) Jones Company's current ratio is declining
- (d) Smith Company's salary expenses are increasing

(9) In an attempt to determine the relative effect of changes in the level of sales on the two companies, an analyst would probably be concerned with the fact that:

- (a) Smith Company has a very high current ratio
- (b) Smith Company is labor intense
- (c) Jones Company has a high degree of operating leverage
- (d) Jones Company has a small amount of common stock outstanding

(10) Financial leverage can be harmful or beneficial depending on movements in the economy. The best indicator of the degree of financial leverage a firm is using can best be found by:

- (a) Looking at the stockholder's equity section only
- (b) Looking at long-term borrowing only
- (c) Looking at long-term assets and long-term borrowing
- (d) Looking at long-term borrowing and stockholder's equity
## Balance Sheet

December 31

### Smith Company

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>$6,300</td>
<td>$7,600</td>
<td>$5,900</td>
<td>$4,100</td>
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<tr>
<td>Marketable Securities</td>
<td>1,230</td>
<td>1,580</td>
<td>1,580</td>
<td>300</td>
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<tr>
<td>Acct's Rec. (Net)</td>
<td>18,300</td>
<td>13,600</td>
<td>21,600</td>
<td>24,500</td>
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<tr>
<td>Inventories</td>
<td>16,300</td>
<td>12,800</td>
<td>13,200</td>
<td>17,300</td>
</tr>
<tr>
<td><strong>Total Current Assets</strong></td>
<td><strong>$42,130</strong></td>
<td><strong>$35,580</strong></td>
<td><strong>$42,280</strong></td>
<td><strong>$46,200</strong></td>
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</table>

### Fixed Assets

<table>
<thead>
<tr>
<th>Land</th>
<th>$28,000</th>
<th>$28,000</th>
<th>$100,000</th>
<th>$100,000</th>
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<tbody>
<tr>
<td>Plant, Property</td>
<td>16,000</td>
<td>16,000</td>
<td>340,000</td>
<td>340,000</td>
</tr>
<tr>
<td>and Equipment</td>
<td>16,000</td>
<td>16,000</td>
<td>340,000</td>
<td>340,000</td>
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<tr>
<td>Less: Acc. Depr.</td>
<td>(4,000)</td>
<td>(6,000)</td>
<td>(81,000)</td>
<td>(123,300)</td>
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<td><strong>Total Fixed Assets</strong></td>
<td><strong>$40,000</strong></td>
<td><strong>$38,000</strong></td>
<td><strong>$359,000</strong></td>
<td><strong>$316,700</strong></td>
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<td><strong>Total Assets</strong></td>
<td><strong>$82,130</strong></td>
<td><strong>$73,580</strong></td>
<td><strong>$401,280</strong></td>
<td><strong>$362,900</strong></td>
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</table>

### Current Liabilities

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<thead>
<tr>
<th>Accounts Payable</th>
<th>$4,320</th>
<th>$3,828</th>
<th>$1,620</th>
<th>$3,800</th>
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<tbody>
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<td>Notes Payable</td>
<td>00</td>
<td>00</td>
<td>1,000</td>
<td>1,000</td>
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<tr>
<td>Accruals</td>
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<td>620</td>
<td>2,680</td>
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<td><strong>Total Cur. Liability</strong></td>
<td><strong>$5,200</strong></td>
<td><strong>$4,448</strong></td>
<td><strong>$5,300</strong></td>
<td><strong>$7,770</strong></td>
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</table>

### Long-Term Liabilities

<table>
<thead>
<tr>
<th>Notes Payable Equipment</th>
<th>$12,000</th>
<th>$3,618</th>
<th>$213,300</th>
<th>$188,580</th>
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<tbody>
<tr>
<td>Notes Payable Building</td>
<td>10,000</td>
<td>4,200</td>
<td>62,000</td>
<td>56,000</td>
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<td>Notes Payable General</td>
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<td>00</td>
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<tr>
<td><strong>Total Long-Term Liab.</strong></td>
<td><strong>$22,000</strong></td>
<td><strong>$7,818</strong></td>
<td><strong>$374,300</strong></td>
<td><strong>$334,030</strong></td>
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<tr>
<td><strong>Total Liabilities</strong></td>
<td><strong>$27,200</strong></td>
<td><strong>$16,468</strong></td>
<td><strong>$379,600</strong></td>
<td><strong>$341,800</strong></td>
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</table>

### Stockholder's Equity

<table>
<thead>
<tr>
<th>Common Stock</th>
<th>$25,800</th>
<th>$25,800</th>
<th>$3,980</th>
<th>$3,980</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add'l Paid in Capital</td>
<td>12,130</td>
<td>12,130</td>
<td>00</td>
<td>00</td>
</tr>
<tr>
<td>Retained Earnings</td>
<td>11,800</td>
<td>27,832</td>
<td>17,700</td>
<td>23,120</td>
</tr>
<tr>
<td><strong>Total Equity</strong></td>
<td><strong>$49,730</strong></td>
<td><strong>$65,762</strong></td>
<td><strong>$21,680</strong></td>
<td><strong>$27,100</strong></td>
</tr>
<tr>
<td><strong>Total Debt &amp; Equity</strong></td>
<td><strong>$82,130</strong></td>
<td><strong>$73,580</strong></td>
<td><strong>$401,280</strong></td>
<td><strong>$367,900</strong></td>
</tr>
</tbody>
</table>

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Income Statement
For Years Ended December 31, 1986 and 1987

<table>
<thead>
<tr>
<th></th>
<th>Smith Company</th>
<th>Jones Company</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>REVENUES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income from Services</td>
<td>$178,760</td>
<td>$187,698</td>
</tr>
<tr>
<td>Other Revenues</td>
<td>2,390</td>
<td>2,860</td>
</tr>
<tr>
<td><strong>Total Revenues</strong></td>
<td>$181,150</td>
<td>$190,558</td>
</tr>
<tr>
<td><strong>OPERATING EXPENSES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salaries and Wages</td>
<td>$118,760</td>
<td>$124,698</td>
</tr>
<tr>
<td>Advertising Expenses</td>
<td>6,300</td>
<td>6,300</td>
</tr>
<tr>
<td>Repairs &amp; Maintenance</td>
<td>14,720</td>
<td>15,456</td>
</tr>
<tr>
<td>Shipping &amp; Postage</td>
<td>2,160</td>
<td>2,260</td>
</tr>
<tr>
<td>Office Expense</td>
<td>3,280</td>
<td>3,444</td>
</tr>
<tr>
<td>Utilities Expenses</td>
<td>2,675</td>
<td>2,809</td>
</tr>
<tr>
<td>Travel &amp; Entertainment</td>
<td>1,060</td>
<td>1,060</td>
</tr>
<tr>
<td>Insurance</td>
<td>3,475</td>
<td>3,649</td>
</tr>
<tr>
<td><strong>Depreciation Expenses</strong></td>
<td>2,000</td>
<td>2,000</td>
</tr>
<tr>
<td>Total Operating Expenses</td>
<td>$154,430</td>
<td>$161,684</td>
</tr>
<tr>
<td>Income from Operations</td>
<td>$26,720</td>
<td>$28,874</td>
</tr>
<tr>
<td><strong>OTHER REVENUES &amp; EXPENSES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income Tax Expense</td>
<td>$(10,688)</td>
<td>$(11,550)</td>
</tr>
<tr>
<td>Net Income</td>
<td>$16,032</td>
<td>$17,324</td>
</tr>
</tbody>
</table>
APPENDIX B

REPRODUCTION OF THE POSTTEST
Attached, please find two sets of financial statements; one for Logan Company and one for Barnett Company. Both companies are closely held family corporations, managed by the principal shareholder. Both are service businesses and do not differ in their financial reporting practices, i.e., both value inventory using FIFO, both use Straight Line Depreciation.

Both companies are approximately 5 years old, and both managers are in their mid 30's, having opened their businesses as a result of experience gained as junior executives in other firms. Neither Mr. Logan nor Mr. Barnett have extensive accounting knowledge (6 college hours).

Mr. Logan's service is unique in the market place, competing for a small segment in specialized needs. His record keeper is a college graduate who has a degree in accounting. He hires a local CPA firm to file quarterly payroll reports, close the books annually and file tax returns, as well as perform an annual audit.

Mr. Barnett's service competes with larger firms in the market place and is thus operated at a higher level. His record keeper is also a college graduate in business administration. He does employ a CPA to file tax returns and close the books annually. He does not have an annual audit.

Using the above information and the financial statements attached, please express your opinion as to the following: Consider each situation independently of all others. You may remove the financial statements if you would like to make analysis easier (p. 159 and 160).

(1) Assuming an unforeseen expense of $60,000 befalls each company, which company do you feel will best be able to meet this obligation?

______ (a) Logan Company because it is generating more cash
______ (b) Barnett Company because it is generating more cash
______ (c) Logan Company because its profits are higher
______ (d) Barnett Company because its profits are higher

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(2) Considering the fact that Logan Company would like to expand, would you recommend that they:

- (a) Finance expansion by issuing more stock
- (b) Finance expansion by borrowing more money
- (c) Hold off expansion until it can be financed from retained earnings
- (d) Finance expansion by merging with another firm
- (e) Utilize a combination of stock issues and borrowing

(3) Business conditions in the industry in which Logan and Barnett operate have been improving steadily. Recently, an event has taken place which promises to increase business by a marked degree. Do you feel that this change will:

- (a) Increase Logan's profits more than Barnett's
- (b) Increase Barnett's profits more than Logan's
- (c) Increase both company's profits by about the same
- (d) Increase sales, but have little effect on profits of either company

(4) Economic conditions in the area where Logan and Barnett operate indicate that business may slack off considerably. As a result, both companies are considering reducing their labor force by laying off some workers. Would you expect this strategy to be:

- (a) More effective in maintaining profits for Logan Company
- (b) More effective in maintaining profits for Barnett's Company
- (c) Not very effective in maintaining profits for either company
- (d) Considerably effective in maintaining profits for both companies
(5) Considering the fact that Barnett Company would like to expand, would you recommend that they:

- (a) Finance expansion by issuing more stock
- (b) Finance expansion by borrowing more money
- (c) Hold off expansion until it can be financed from retained earnings
- (d) Finance expansion by merging with another firm
- (e) Utilize a combination of stock issues and borrowing

(6) A leading economist with the Wall Street Journal has issued a forecast which suggests an economic downturn in the industry in which Logan and Barnett operate. Would you expect this downturn to:

- (a) Have a more negative effect on Logan than Barnett
- (b) Have a more negative effect on Barnett than Logan
- (c) Have an equally negative effect on both
- (d) Have no effect on either company
- (e) Have a positive effect on both companies

(7) Considering the change in liquidity of the two companies over time, which statement do you feel is most accurate?

- (a) Barnett is becoming more risky over time
- (b) Logan is becoming more risky over time
- (c) Both firms are becoming more risky over time
- (d) Both firms are becoming less risky over time

(8) In evaluating relative risk between Barnett and Logan, the most useful observation would be that:

- (a) Barnett Company's current assets are increasing
- (b) Logan Company's inventory level is declining
- (c) Barnett Company's current ratio is declining
- (d) Logan Company's salary expenses are increasing
(9) In an attempt to determine the relative effect of changes in the level of sales of the two companies, an analyst would probably be concerned with the fact that:

- (a) Logan Company has a very high current ratio
- (b) Logan Company is labor intense
- (c) Barnett Company has a high degree of operating leverage
- (d) Barnett Company has a small amount of common stock outstanding

(10) Financial leverage can be harmful or beneficial depending on movements in the economy. The best indicator of the degree of financial leverage a firm is using can best be found by:

- (a) Looking at the stockholder's equity section only
- (b) Looking at long-term borrowing only
- (c) Looking at long-term assets and long-term borrowing
- (d) Looking at long-term borrowing and stockholder's equity
### Balance Sheet
#### December 31

<table>
<thead>
<tr>
<th></th>
<th>Logan Company</th>
<th></th>
<th>Barnett Company</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CURRENT ASSETS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash</td>
<td>$17,325</td>
<td>$19,300</td>
<td>$16,225</td>
<td>$14,620</td>
</tr>
<tr>
<td>Marketable Securities</td>
<td>3,382</td>
<td>5,400</td>
<td>4,345</td>
<td>2,500</td>
</tr>
<tr>
<td>Acct's Receivable</td>
<td>50,325</td>
<td>40,800</td>
<td>59,400</td>
<td>61,290</td>
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<tr>
<td>Inventories</td>
<td>44,825</td>
<td>38,400</td>
<td>36,300</td>
<td>42,960</td>
</tr>
<tr>
<td><strong>Total Current Assets</strong></td>
<td><strong>$115,857</strong></td>
<td><strong>$103,900</strong></td>
<td><strong>$116,270</strong></td>
<td><strong>$120,870</strong></td>
</tr>
<tr>
<td><strong>FIXED ASSETS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Land</td>
<td>$77,000</td>
<td>$77,000</td>
<td>$275,000</td>
<td>$275,000</td>
</tr>
<tr>
<td>Plant, Property</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>and Equipment</td>
<td>44,000</td>
<td>44,000</td>
<td>935,000</td>
<td>935,000</td>
</tr>
<tr>
<td>Less: Acc. Depr.</td>
<td>(11,000)</td>
<td>(13,500)</td>
<td>(222,750)</td>
<td>(328,454)</td>
</tr>
<tr>
<td><strong>Total Fixed Assets</strong></td>
<td><strong>$110,000</strong></td>
<td><strong>$107,500</strong></td>
<td><strong>$987,250</strong></td>
<td><strong>$881,546</strong></td>
</tr>
<tr>
<td><strong>Total Assets</strong></td>
<td><strong>$225,857</strong></td>
<td><strong>$211,400</strong></td>
<td><strong>$1,103,520</strong></td>
<td><strong>$1,002,416</strong></td>
</tr>
<tr>
<td><strong>CURRENT LIABILITIES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accounts Payable</td>
<td>$11,880</td>
<td>$1,680</td>
<td>$4,455</td>
<td>$11,400</td>
</tr>
<tr>
<td>Notes Payable</td>
<td>00</td>
<td>00</td>
<td>2,750</td>
<td>3,000</td>
</tr>
<tr>
<td>Accruals</td>
<td>2,420</td>
<td>2,345</td>
<td>7,370</td>
<td>8,940</td>
</tr>
<tr>
<td><strong>Total Cur. Liability</strong></td>
<td><strong>$14,300</strong></td>
<td><strong>$4,025</strong></td>
<td><strong>$14,375</strong></td>
<td><strong>$23,340</strong></td>
</tr>
<tr>
<td><strong>LONG-TERM LIABILITIES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Notes Payable Equipment</td>
<td>$33,000</td>
<td>$6,000</td>
<td>$586,575</td>
<td>$542,520</td>
</tr>
<tr>
<td>Notes Payable Building</td>
<td>27,500</td>
<td>10,088</td>
<td>170,500</td>
<td>150,300</td>
</tr>
<tr>
<td>Notes Payable General</td>
<td>00</td>
<td>00</td>
<td>272,250</td>
<td>213,086</td>
</tr>
<tr>
<td><strong>Total Long-Term Liab.</strong></td>
<td><strong>$60,500</strong></td>
<td><strong>$16,088</strong></td>
<td><strong>$1,029,325</strong></td>
<td><strong>$905,906</strong></td>
</tr>
<tr>
<td><strong>Total Liabilities</strong></td>
<td><strong>$74,800</strong></td>
<td><strong>$20,113</strong></td>
<td><strong>$1,043,900</strong></td>
<td><strong>$929,246</strong></td>
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<tr>
<td><strong>STOCKHOLDER'S EQUITY</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Stock</td>
<td>$70,950</td>
<td>$70,950</td>
<td>$10,945</td>
<td>$10,945</td>
</tr>
<tr>
<td>Add'l Paid in Capital</td>
<td>33,357</td>
<td>33,357</td>
<td>00</td>
<td>00</td>
</tr>
<tr>
<td>Retained Earnings</td>
<td>48,750</td>
<td>86,980</td>
<td>48,675</td>
<td>62,225</td>
</tr>
<tr>
<td><strong>Total Equity</strong></td>
<td><strong>$151,057</strong></td>
<td><strong>$191,287</strong></td>
<td><strong>$59,620</strong></td>
<td><strong>$73,170</strong></td>
</tr>
<tr>
<td><strong>Total Debt &amp; Equity</strong></td>
<td><strong>$225,857</strong></td>
<td><strong>$211,400</strong></td>
<td><strong>$1,103,520</strong></td>
<td><strong>$1,002,416</strong></td>
</tr>
</tbody>
</table>

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## Income Statement
### For Years Ended December 31, 1986 and 1987

<table>
<thead>
<tr>
<th></th>
<th>Logan Company</th>
<th>Barnett Company</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>REVENUES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income from Services</td>
<td>$476,900</td>
<td>$500,745</td>
</tr>
<tr>
<td>Other Revenues</td>
<td>5,975</td>
<td>6,122</td>
</tr>
<tr>
<td>Total Revenues</td>
<td>$482,875</td>
<td>$506,867</td>
</tr>
<tr>
<td><strong>OPERATING EXPENSES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salaries and Wages</td>
<td>$326,900</td>
<td>$343,245</td>
</tr>
<tr>
<td>Advertising Expenses</td>
<td>15,750</td>
<td>16,538</td>
</tr>
<tr>
<td>Repairs &amp; Maintenance</td>
<td>36,800</td>
<td>38,640</td>
</tr>
<tr>
<td>Shipping &amp; Postage</td>
<td>5,400</td>
<td>5,670</td>
</tr>
<tr>
<td>Office Expense</td>
<td>8,200</td>
<td>8,610</td>
</tr>
<tr>
<td>Utilities Expenses</td>
<td>6,687</td>
<td>7,021</td>
</tr>
<tr>
<td>Travel &amp; Entertainment</td>
<td>4,900</td>
<td>5,145</td>
</tr>
<tr>
<td>Insurance</td>
<td>8,688</td>
<td>9,122</td>
</tr>
<tr>
<td>Depreciation Expenses</td>
<td>2,300</td>
<td>2,500</td>
</tr>
<tr>
<td>Total Operating</td>
<td>$415,825</td>
<td>$436,491</td>
</tr>
<tr>
<td>Expenses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income from Operations</td>
<td>$67,050</td>
<td>$70,376</td>
</tr>
<tr>
<td><strong>OTHER REVENUES &amp; EXPENSES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income Tax Expense</td>
<td>$26,820</td>
<td>$28,150</td>
</tr>
<tr>
<td>Net Income</td>
<td>$40,230</td>
<td>$42,226</td>
</tr>
</tbody>
</table>

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APPENDIX C

REPRODUCTION OF THE ATTITUIONAL SURVEYS

160
This appendix shows the survey instruments used to gather the attitudinal data.

Survey number two contains twenty-eight questions. The first ten are the dogmatism scale. Numbers eleven through nineteen are the job involvement questions. Numbers twenty through twenty-eight are the upward striving (motivation) scale.

Survey number five is a composite. Questions numbered 1, 3, 11, 13, 14, 18 and 22 served as a measure of liberalism. Questions numbered 5, 7, 9, 16, 20, 24 and 26 served as a measure of conservatism. Other questions on this survey were part of the tax placebo treatment.

Given below are statements on various social and business issues. Everyone thinks differently about each matter and this scale is an attempt to let you express your beliefs and opinions. There are no right or wrong answers. Simply respond to each of the items by checking the blank that applies to your feeling about this issue. Please answer all items.

1. It is often desirable to reserve judgement about what's going on until one has had a chance to hear the opinions of those one respects.

   Agree very strongly ______ Disagree ______
   Agree strongly ______ Disagree strongly ______
   Agree ______ Disagree very strongly ______

2. In the history of mankind there have probably been just a handful of really great thinkers.

   Agree very strongly ______ Disagree ______
   Agree strongly ______ Disagree strongly ______
   Agree ______ Disagree very strongly ______

3. Most people just don't know what's good for them.

   Agree very strongly ______ Disagree ______
   Agree strongly ______ Disagree strongly ______
   Agree ______ Disagree very strongly ______
4. Once I get wound up in a heated discussion, I just can't stop.

<table>
<thead>
<tr>
<th>Agree very strongly</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree strongly</td>
<td>Disagree strongly</td>
</tr>
<tr>
<td>Agree</td>
<td>Disagree very strongly</td>
</tr>
</tbody>
</table>

5. In this complicated world of ours, the only way we can know what is going on is to rely upon leaders or experts who can be trusted.

<table>
<thead>
<tr>
<th>Agree very strongly</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree strongly</td>
<td>Disagree strongly</td>
</tr>
<tr>
<td>Agree</td>
<td>Disagree very strongly</td>
</tr>
</tbody>
</table>

6. In the long run, the best way to live is to pick friends and associates whose tastes and beliefs are the same as one's own.

<table>
<thead>
<tr>
<th>Agree very strongly</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree strongly</td>
<td>Disagree strongly</td>
</tr>
<tr>
<td>Agree</td>
<td>Disagree very strongly</td>
</tr>
</tbody>
</table>

7. While I don't like to admit this even to myself, I sometimes have the ambition to become a great person like Einstein, Beethoven or Shakespeare.

<table>
<thead>
<tr>
<th>Agree very strongly</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree strongly</td>
<td>Disagree strongly</td>
</tr>
<tr>
<td>Agree</td>
<td>Disagree very strongly</td>
</tr>
</tbody>
</table>

8. Of all the different philosophies which exist in this world, there is probably only one which is correct.

<table>
<thead>
<tr>
<th>Agree very strongly</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree strongly</td>
<td>Disagree strongly</td>
</tr>
<tr>
<td>Agree</td>
<td>Disagree very strongly</td>
</tr>
</tbody>
</table>

9. My blood boils whenever a person stubbornly refuses to admit he's wrong.

<table>
<thead>
<tr>
<th>Agree very strongly</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree strongly</td>
<td>Disagree strongly</td>
</tr>
<tr>
<td>Agree</td>
<td>Disagree very strongly</td>
</tr>
</tbody>
</table>

10. The highest form of government is democracy and the highest form of democracy is a government run by those who are most intelligent.

<table>
<thead>
<tr>
<th>Agree very strongly</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree strongly</td>
<td>Disagree strongly</td>
</tr>
<tr>
<td>Agree</td>
<td>Disagree very strongly</td>
</tr>
</tbody>
</table>
11. Most companies have suggestion boxes for their workers, but I doubt that the companies take these suggestions seriously.

Agree very strongly _____  Disagree _____
Agree strongly   _____  Disagree strongly _____
Agree _____  Disagree very strongly _____

12. A good worker cares about finding ways to improve a job, and when one has an idea, one should pass it on to the supervisor.

Agree very strongly _____  Disagree _____
Agree strongly   _____  Disagree strongly _____
Agree _____  Disagree very strongly _____

13. One who has an idea about how to improve one's own job should drop a note in the company suggestion box.

Agree very strongly _____  Disagree _____
Agree strongly   _____  Disagree strongly _____
Agree _____  Disagree very strongly _____

14. A good worker is interested in helping a new worker learn his/her job.

Agree very strongly _____  Disagree _____
Agree strongly   _____  Disagree strongly _____
Agree _____  Disagree very strongly _____

15. If a worker has a choice between going to the company picnic or staying home with an enjoyable hobby, the worker would probably be better off staying at home.

Agree very strongly _____  Disagree _____
Agree strongly   _____  Disagree strongly _____
Agree _____  Disagree very strongly _____

16. Even if a worker has a very low-level job in a company, it is still possible for the worker to make suggestions which will affect company policy.

Agree very strongly _____  Disagree _____
Agree strongly   _____  Disagree strongly _____
Agree _____  Disagree very strongly _____
17. Once a week, after the work day is over, a company may have their workers get together in groups for the purpose of discussing possible job changes. A good worker should remain after quitting time to participate in these discussions.

| Agree very strongly | Disagree |
| Agree strongly      | Disagree strongly |
| Agree               | Disagree very strongly |

18. If something is wrong with a job, a smart worker will mind his or her own business and let somebody else complain about it.

| Agree very strongly | Disagree |
| Agree strongly      | Disagree strongly |
| Agree               | Disagree very strongly |

19. One should do one's own job and forget about such things as company meetings or company activities.

| Agree very strongly | Disagree |
| Agree strongly      | Disagree strongly |
| Agree               | Disagree very strongly |

20. Even if a person has a good job, they should always be looking for a better job.

| Agree very strongly | Disagree |
| Agree strongly      | Disagree strongly |
| Agree               | Disagree very strongly |

21. In choosing a job, a person should consider chances for advancement, as well as other factors.

| Agree very strongly | Disagree |
| Agree strongly      | Disagree strongly |
| Agree               | Disagree very strongly |

22. One should always be thinking about pulling oneself up in the world and should work hard with the hope of being promoted to a higher job level.

| Agree very strongly | Disagree |
| Agree strongly      | Disagree strongly |
| Agree               | Disagree very strongly |

23. If a person likes his job, they should be satisfied with it and should not push for a promotion to another job.

| Agree very strongly | Disagree |
| Agree strongly      | Disagree strongly |
| Agree               | Disagree very strongly |
24. The trouble with too many people is that when they find a job in which they are interested, they don't try to get a better job.

| Agree very strongly | Disagree |
| Agree strongly      | Disagree strongly |
| Agree              | Disagree very strongly |

25. A worker who turns down a promotion is probably making a mistake.

| Agree very strongly | Disagree |
| Agree strongly      | Disagree strongly |
| Agree              | Disagree very strongly |

26. A promotion to a higher level job usually means more worries and should be avoided for that reason.

| Agree very strongly | Disagree |
| Agree strongly      | Disagree strongly |
| Agree              | Disagree very strongly |

27. A well-paying job that offers little opportunity for advancement is not a good job for me.

| Agree very strongly | Disagree |
| Agree strongly      | Disagree strongly |
| Agree              | Disagree very strongly |

28. One is better off if they are satisfied with their own job and are not concerned about being promoted to another job.

| Agree very strongly | Disagree |
| Agree strongly      | Disagree strongly |
| Agree              | Disagree very strongly |
1. Large fortunes should be taxed fairly heavily over and above income taxes.
   
   | Agree very strongly | Disagree |
   | Agree strongly      | Disagree strongly |
   | Agree              | Disagree very strongly |

2. Most people are basically honest and would pay their share of taxes even without the presence of the IRS.
   
   | Agree very strongly | Disagree |
   | Agree strongly      | Disagree strongly |
   | Agree              | Disagree very strongly |

3. To ensure adequate care of the sick, we need to radically change the present system of privately controlled medical care.
   
   | Agree very strongly | Disagree |
   | Agree strongly      | Disagree strongly |
   | Agree              | Disagree very strongly |

4. IRS agents generally try to treat taxpayers fairly.
   
   | Agree very strongly | Disagree |
   | Agree strongly      | Disagree strongly |
   | Agree              | Disagree very strongly |

5. A first consideration in any society is the protection of property rights.
   
   | Agree very strongly | Disagree |
   | Agree strongly      | Disagree strongly |
   | Agree              | Disagree very strongly |

6. Since the collection of taxes is necessary for the operation of the federal government, the IRS should be permitted to use any tactics necessary to prevent tax evasion.
   
   | Agree very strongly | Disagree |
   | Agree strongly      | Disagree strongly |
   | Agree              | Disagree very strongly |

7. Government ownership and management of utilities leads to bureaucracy and inefficiency.
   
   | Agree very strongly | Disagree |
   | Agree strongly      | Disagree strongly |
   | Agree              | Disagree very strongly |
8. Because the taxpayer has the option of seeking professional advice, the responsibility for being informed of one's rights in a tax dispute should fall on the taxpayer and not on the IRS agent.

Agree very strongly ______ Disagree ______
Agree strongly ______ Disagree strongly ______
Agree ______ Disagree very strongly ______

9. If the United States takes part in any sort of world organization, we should be sure that we lose none of our power and influence.

Agree very strongly ______ Disagree ______
Agree strongly ______ Disagree strongly ______
Agree ______ Disagree very strongly ______

10. Taxpayers should be penalized for claiming deductions to which they are not entitled, even if they acted on the advice of an IRS representative.

Agree very strongly ______ Disagree ______
Agree strongly ______ Disagree strongly ______
Agree ______ Disagree very strongly ______

11. Funds for school construction should come from state and federal government loans at no interest or very low interest.

Agree very strongly ______ Disagree ______
Agree strongly ______ Disagree strongly ______
Agree ______ Disagree very strongly ______

12. A good method for evaluating the productivity of IRS agents for the purpose of awarding raises and promotions is to base such raises and promotions on the amount of tax dollars collected in tax disputes.

Agree very strongly ______ Disagree ______
Agree strongly ______ Disagree strongly ______
Agree ______ Disagree very strongly ______

13. Our present economic system should be reformed so that profits are replaced by reimbursements for useful work.

Agree very strongly ______ Disagree ______
Agree strongly ______ Disagree strongly ______
Agree ______ Disagree very strongly ______
14. Public enterprises like airlines should not make profits. They are entitled to fares sufficient to enable them to pay only a fair interest on the actual cash capital they have invested.

Agree very strongly ______ Disagree ________
Agree strongly _______ Disagree strongly _______
Agree ________ Disagree very strongly ________

15. Taxpayers should generally be permitted to pay past due taxes in installments.

Agree very strongly ______ Disagree ________
Agree strongly _______ Disagree strongly _______
Agree ________ Disagree very strongly ________

16. Government laws and regulations should be such as first to ensure the prosperity of business since the prosperity of all depends on the prosperity of business.

Agree very strongly ______ Disagree ________
Agree strongly _______ Disagree strongly _______
Agree ________ Disagree very strongly ________

17. IRS agents should be personally liable for losses incurred by taxpayers in a tax dispute when the taxpayer is innocent and the agent acted wrongfully in the line of duty.

Agree very strongly ______ Disagree ________
Agree strongly _______ Disagree strongly _______
Agree ________ Disagree very strongly ________

18. All individuals who are intellectually capable of benefiting from it should get a college education at public expense if necessary.

Agree very strongly ______ Disagree ________
Agree strongly _______ Disagree strongly _______
Agree ________ Disagree very strongly ________

19. If taxpayers are made aware of their rights in a tax dispute, they will take unfair advantages to avoid paying taxes they legitimately owe.

Agree very strongly ______ Disagree ________
Agree strongly _______ Disagree strongly _______
Agree ________ Disagree very strongly ________
20. The well-being of a nation depends mainly on its industry and business.

Agree very strongly  Disagree
Agree strongly  Disagree strongly
Agree  Disagree very strongly

21. If past due taxes are the result of deliberate tax evasion, taxpayers should not be permitted to pay those taxes in installments, but should be required to make an immediate lump-sum payment.

Agree very strongly  Disagree
Agree strongly  Disagree strongly
Agree  Disagree very strongly

22. Unemployment insurance is an inalienable right of the working man.

Agree very strongly  Disagree
Agree strongly  Disagree strongly
Agree  Disagree very strongly

23. Individuals generally associate the mirandizing (informing the accused of his/her rights) process with criminal activity.

Agree very strongly  Disagree
Agree strongly  Disagree strongly
Agree  Disagree very strongly

24. There should be no government interference with business and trade.

Agree very strongly  Disagree
Agree strongly  Disagree strongly
Agree  Disagree very strongly

25. Fear of the IRS causes most taxpayers to attempt to report income and expenses honestly.

Agree very strongly  Disagree
Agree strongly  Disagree strongly
Agree  Disagree very strongly

26. Individuals with the ability and foresight to earn and accumulate wealth should have the right to enjoy that wealth without government interference and regulations.

Agree very strongly  Disagree
Agree strongly  Disagree strongly
Agree  Disagree very strongly
APPENDIX D

REPRODUCTION OF THE DEMOGRAPHIC SURVEYS
The following questions are to gain biographical insight into workers in the small business area. All responses will be kept in confidence, and all information will be analyzed in a summary form only. Please answer all questions to the best of your ability.

**What is your current age?**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>1</td>
<td>21 through 26</td>
</tr>
<tr>
<td>2</td>
<td>27 through 32</td>
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<tr>
<td>3</td>
<td>33 through 38</td>
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<tr>
<td>4</td>
<td>39 through 44</td>
</tr>
<tr>
<td>5</td>
<td>45 through 50</td>
</tr>
<tr>
<td>6</td>
<td>51 through 56</td>
</tr>
<tr>
<td>7</td>
<td>57 through 62</td>
</tr>
<tr>
<td>8</td>
<td>Over 62</td>
</tr>
</tbody>
</table>

**What was your estimated household income last year?**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Under $5,000</td>
</tr>
<tr>
<td>2</td>
<td>$5,000 to $10,000</td>
</tr>
<tr>
<td>3</td>
<td>$10,001 to $15,000</td>
</tr>
<tr>
<td>4</td>
<td>$15,001 to $20,000</td>
</tr>
<tr>
<td>5</td>
<td>$20,001 to $25,000</td>
</tr>
<tr>
<td>6</td>
<td>$25,001 to $30,000</td>
</tr>
<tr>
<td>7</td>
<td>$30,001 to $40,000</td>
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<tr>
<td>8</td>
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</tr>
<tr>
<td>9</td>
<td>$50,001 to $75,000</td>
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<tr>
<td>10</td>
<td>$75,001 to $100,000</td>
</tr>
<tr>
<td>11</td>
<td>Over $100,000</td>
</tr>
</tbody>
</table>

**What is the highest level of education you have completed?**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Did not complete elementary school</td>
</tr>
<tr>
<td>2</td>
<td>Completed elementary school, but did not complete high school</td>
</tr>
<tr>
<td>3</td>
<td>Completed high school</td>
</tr>
<tr>
<td>4</td>
<td>Attended college, but did not complete college</td>
</tr>
<tr>
<td>5</td>
<td>College graduate</td>
</tr>
<tr>
<td>6</td>
<td>Attended graduate school, but did not complete</td>
</tr>
<tr>
<td>7</td>
<td>Completed a graduate school program</td>
</tr>
</tbody>
</table>
How much management experience have you had?

______  (1) Less than one year  
______  (2) 1 - 2 years  
______  (3) 2 - 5 years  
______  (4) 4 - 10 years  
______  (5) 10 - 20 years  
______  (6) Over 20 years

Which of the following best describes your ethnic background?

______  (1) Oriental  
______  (2) Latin  
______  (3) American Indian  
______  (4) Black  
______  (5) Caucasian (White)  
______  (6) Other, please specify __________________

Have you ever applied for an SBA Loan?

______  (1) Yes    ______  (2) No

Have you ever received an SBA Loan?

______  (1) Yes    ______  (2) No

Which of the following descriptions best describes the occupation of the head of household of your parent's home, i.e., What did/does your father or mother do for a living?

______  (1) Owner/Manager of a business  
______  (2) Professional (Doctor, Attorney, Professor, CPA, Executive in large publically held company)  
______  (3) Supervisor, Foreman  
______  (4) Teacher (High School, Elementary, Preschool)  
______  (5) Clerical  
______  (6) Laborer  
______  (7) Unemployed  
______  (8) Other, please specify __________________

Do you currently work for, or own a small business?

______  (1) Yes    ______  (2) No
What is the job title of the position you now hold?

Approximately how many employees work for your firm? (Include Owners/Managers which devote at least part-time).
VITA

Name: J. Dennis Coates
Born: Mound City, Missouri
January 5, 1949
Academic Degree: B. S. in Finance
Northwest Missouri State University
Business Experience: General Manager,
Superior Bus Sales, Inc. (1971-1977)
Owner/Manager
J. D. Coates, Inc.
Scholastic Equipment Co. (1977-1982)
Academic Experience: Graduate Teaching Assistant
Louisiana State University (1984-1988)
Visiting Professor
Southern University (1989)
Membership: American Accounting Association
American Institute of Certified Public Accountants
Missouri Society of Certified Public Accountants
Other: Certified Public Account
State of Missouri, 1982
DOCTORAL EXAMINATION AND DISSERTATION REPORT

Candidate: J. Dennis Coates

Major Field: Accounting

Title of Dissertation: A Training Intervention for Control of SBA Loan Defaults: A Theory Development Approach

Approved:

[Signatures of Major Professor and Chairman, Dean of the Graduate School]

EXAMINING COMMITTEE:

[Signatures of committee members]

Date of Examination: May 4, 1989