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The Development of Return on Investment (ROI) Analysis for Training Programs in the United States

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**THE DEVELOPMENT OF
RETURN ON INVESTMENT (ROI) ANALYSIS
FOR TRAINING PROGRAMS
IN THE UNITED STATES**

A Research Project Presented to the Faculty
of the Department of Occupational and Technical Studies
Old Dominion University

In Partial Fulfillment of the
Requirements for the Degree of
Master of Science in Adult Education

by

George Y. Bryson

August 1993

APPROVAL PAGE

This research paper was prepared by George Y. Bryson under the direction of Dr. John M. Ritz in OTED 636, Problems in Education. It was submitted to the Graduate Program Director as partial fulfillment of the requirements for the Degree of Master of Science of Education.

APPROVAL BY: John M. Ritz 8-3-93
Dr. John M. Ritz Date
Advisor and Graduate
Program Director

It would seem as if the rulers of our time sought only to use men to make things great; I wish they would try a little more to make great men; that they set less value on the work; and more value on the workman.

Alexis Charles Henri Clérel de Tocqueville

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CHAPTER I

INTRODUCTION

Historically corporations have offered only limited amounts of educational opportunities to their employees. Reasons for this have included: Social structures, prevailing managerial methods and theories, union pressures, and the major factor--economic realities. Corporations have maintained the ability to mass produce products by improving machines and have thus been able to insure both growth of corporate profits and increased pay and benefits for employees. Individual worker educational or vocational skill development had no priority and made no dollar sense (Benton, Benton, Noyelle, and Stanback, pp. 1-21. Regler, p. 118).

Recently as social and management theories have evolved, magnified by the world economic situation, the need to improve the employee rather than the machine has been recognized. Corporate cost and profit margins are being effected by machines today that can make one or many of the product at (or very close to) the same unit cost, making the mass production of products unnecessary to maintain profit margins. The newer technologically advanced machines require different operator skills, including machine set-up and programming, and a need for the worker to follow written and/or verbal instructions.

Employees need to effectively communicate with fellow workers and management in both written and verbal forms. The new management styles and economic realities of a world economy are compelling workers to become responsible for making many decisions formally performed by middle management, demanding from the employee greater skills and educational background. A world economy facilitated by rapid technological growth and availability of modern production technology and machinery in low cost labor areas of the world has forced many companies to invest in employee training, education, and development to remain competitive (Benton, Bailey, Noyelle, and Stanback, pp. 1-21).

Training programs existed long before the beginning of the industrial revolution. There is archaeological information showing evidence of agricultural training from 3,500 B.C. and apprenticeships from 2100 B.C. It was training that permitted persons with an agricultural background to effectively enter factories as machinery operators (Nadler, p. 4).

Prior to World War II, once basic training had been provided any further training was conducted because: 1) Training was seen as the companies civic responsibility, and 2) managers had a feeling that training was good for the company. Costs and bottom line savings of employee training, education, and development programs remained unconsidered. Cost analysis was not a factor in determining scope,

development, delivery methods or evaluation of training program effectiveness, nor effects on the profitability of the corporation.

Training cost evaluations were identified as a need in the early 1970's (Pine and Tingley, pp. 55-60); yet even today, they are not being conducted by an estimated 90% of corporations (Cummings and Parks, p. 243). As economic climates change, it is becoming necessary that corporations establish accounting procedures that provide hard dollar information on training's value to the company, and in fact improved data are becoming available that suggest training, education, and development of employees is one of a number of solutions (if not a requirement) for increasing productivity, quality and increasing profits.

STATEMENT OF THE PROBLEM

The problem of this study was to establish the development of return on investment (ROI) analysis in training programs in the United States.

RESEARCH GOALS

This paper's goals are to support the intuitive feeling that training and education of employees is financially sound business procedure and may be empirically substantiated by citing studies that show:

1. Organizations that provide employees opportunities for training, education, and development are able to generate savings that significantly add to the profitability of the organization.
2. Education increases employee productivity.
3. Education of employees helps the company compete with changes in the economic world.
4. Education of employees produces a better quality product.

There are secondary benefits to employee education which add to (or subtract from) the profitability of the company and have not yet been fully documented or even identified. These are characterized as multiple outcomes or non-measurable distributed effects (May, Moor, and Zammit, 1987). This paper will not attempt to provide any methods for determining the cost effectiveness of these so called soft benefits (Pine and Tingley, pp. 55-60).

BACKGROUND AND SIGNIFICANCE

Industrial training and education, like all disciplines, has grown, developed, and been modified by changes in the societal, economic, and social perceptions of humanity. Chapter II will present the history of this change to industrial training, education and development. It is necessary at this point to state that the data on the cost effectiveness of training provided by organizations has been

limited due to identifiable perceptions and attitudes (these attitudes are listed in Chapter V). Education of employees has been viewed on a continuum from almost an outrage by early labor movements, through a period of being a employee responsibility and not a concern of the company; to the most recent realization that the individual employee is a corporate asset and should be regarded as such in the firms planning, use, and accounting procedures.

As the bottom line value of education has become, and continues to be, better understood, the following outcomes can be expected:

- Corporations who do not have training programs in place will initiate them.
- Those who have programs will keep them, even during periods of economic slowdown.
- New programs will be developed and existing programs will be evaluated and improved.
- As the cost effectiveness of corporation training is proven, the economic benefits of improved employee skill levels should promote an additional emphasis for corporate education and development opportunities. It is expected that an interest will also develop for corporations to become involved in vocational and academic training program development at the secondary school and junior college level (Cummings and Parks, p. 243).

LIMITATIONS

The limitations of this study are identified as follows:

1. Data is limited in availability. Employee training effects on the corporation profitability were in most cases not collected, and when collected it was not done using empirical methods. Data was based on the feelings and attitudes of those who took part in the training. It was often a personality of the instructor and like/dislike of the material that was measured.
2. Training budgets were not kept. Dollar costs for training were accounted for in other categories making exact costs impossible to determine.
3. Employees were viewed as liabilities and not as assets. Their worth, as well as training received, was not registered as profit (or loss) on the bottom line.
4. Available data comes from large corporations, those with over 5,000 employees. Large corporations have the following characteristics which may make comparisons with smaller companies difficult:
 - a. Flexibility in promoting or moving employees to different positions.
 - b. Greater range of skills used within the company.
 - c. Money available for training and educational facilities.

- d. High tech industries with rapidly changing product lines.

ASSUMPTIONS

This study incorporated the following assumptions:

1. Training, education, and development are effective ways to increase profit margins for a corporation.
2. The information that is available and methods of evaluating this data, even though derived from studies of large corporations, can be beneficial to smaller companies in training cost evaluation in developing and providing training programs, either self produced or purchased.
3. As training programs have developed, the importance of accurate records in their analysis has become apparent.
4. Significant methods are now available for corporations to effectively evaluate the cost effectiveness of existing and proposed training programs.

PROCEDURES

Records were reviewed for significant data in the field of corporate training, education, and employee development programs. Records searched included books, journals, periodicals, government studies, census records, newspapers,

and corporate annual reports. On site interviews were held to verify that facts presented in resource material were correct and that theories developed by the researcher were valid.

DEFINITION OF TERMS

The following terms were used throughout this study.

Business. "Any occupation in which people, at the risk of loss, seek to make money by producing commodities for sale, or by buying and selling commodities, or by hiring the services of others for utilization at a profit. Any gainful occupation for which profit is the goal and in which there is a risk of loss" (Alexander Hamilton Institute, p. 60).

Corporation. Any organized body dealing in either for profit or not for profit services or products that employs persons (or uses volunteers) to carry out the goal of the organization.

Development. Instruction given to an employee to allow self development. Although this may benefit the company, this instruction is not given to groom the individual for a specific position within the company. It often creates a feeling of company loyalty.

Education. Instruction given to an employee to allow them to assume greater responsibilities in the organization. This instruction is provided to prepare the individual to fill a determined or projected need

within the company, usually within a two year time period.

Industrial revolution. The change of the social structure in the United States from an agrarian society to one of manufacturing, using power driven machines to take the place of hand operated tools.

Instruction. Includes on site training, off site company training, or tuition assistance. Individual self paced education (correspondence schools), state or private vocational schools, or college courses financed by the individual are not included in this definition.

Training. Instruction given to an employee to allow them to function (or increase skill level) in his/her presently assigned job.

SUMMARY

Chapter I introduced the problem of the study which was to show the profitability of corporate training, education, and development programs. The remainder of Chapter I presented research goals, background and significance, limitations, assumptions, procedures and definition of terms.

Chapter II will provide a review of the literature relating to the study. It will focus on the development of cost effectiveness and bottom line profit analysis, showing how dollar benefits to corporations with established training, education, and development programs are derived.

Chapter III explains the methods and procedures strategy of the research. Chapter IV presents the data and its analysis as it relates to the research. Chapter V is the conclusion of the study with a summary of the findings and recommendations for further study.

CHAPTER II

REVIEW OF LITERATURE

Presented in this chapter is a review of the literature used to determine the background, focus, and information available on the development of training cost evaluation (return on investment (ROI)) effectiveness in the United States. Included is a brief history of industrial development and social changes brought about by the industrial and information revolution in the United States. The paper provides a brief historical view of training in the work place. An overview is presented of dollar amounts budgeted for training expenditures, training hours provided and the development of an evaluation procedure providing a ROI figure for use in determining the cost effectiveness of provided employee training.

HISTORY OF TRAINING IN THE UNITED STATES

The training of individuals certainly must rival any profession as the oldest on earth. Until the year 1816, a date proposed by Regler (p. 118) as the start of the industrial revolution in the United States, and utilized as a reference point in this paper, training (included apprenticeship and bind out boys to masters for training) was

quite literally a cottage enterprise (Channing, p. 368). The industrial revolution in the United States, as was the case in England a half-century earlier, was a developmental one, and it is recognized that 1816, or any date chosen as the start of this phenomenon is arbitrary. In conducting research it was discovered that the term industrial revolution has fallen out of favor with many of today's writers and historians. As it is used in this paper 'industrial revolution' refers to the change of the social structure in the United States from an agrarian society to one of manufacturing, using power driven machines to take the place of hand operated tools (Current, Williams, and Freidel, p. 183) During the industrial revolution the training of individuals, most from an agricultural background, for the skills needed to become factory workers was a necessity in the survival of the 'revolutions' social and economic changes.

In the 1700's farm families produced nearly all their necessities within the household. As towns grew so did artisans and by 1750 almost a third of the population of large cities owed their living to a craft of some kind. These artisans and their craft remained a family enterprise. (Current, Williams, and Freidel, p. 66)

In the 1860 census less than 60% of the labor force was employed in agriculture, with 12% in manufacturing. In the same year, over one-half million men and women were working in over 53,000 manufacturing establishments in the mid-atlantic

states (Regler, p. 118). The relatively high wages offered by factories was attracting farmers and members of their families to leave the farm (Morison, Commager, and Leuchtenburg, pp. 453-456). In many cases it was the females and children who left the farm for the factory. In the early 1900's 1.7 million children under 16 were working. Ten percent of girls 10-15 years old and 20 percent of boys 10-15 years old were employed. Of this number 40 percent were working in factories or trades, 60 percent in agriculture (Current, Williams, and Freidel, p. 66). Much has been written about the poor conditions of the working place. As will be noted later in this chapter, legislative action was necessitated, and enacted, as a result of the social changes caused by the industrial revolution. During the mid-1800's manufacturing surpassed agriculture in contributing to the gross national product (GNP) (Cummings and Park, p. 238). The dominance of the farmer in American society was being challenged by the urban wage earner.

During this early industrial age, some formal schools were established to teach trades, although few they were often established by trade guilds. Most companies invested little towards training and with few exceptions no formal company training programs were in place. Early machines were relatively simple to run, and thus the learning cycle required to make a worker productive was short (Cummings and Park, p. 238).

Social changes both accelerated the industrial revolution, and were made possible because of it. Changes included:

- Agricultural improvements which allowed more food to be grown by less workers. Making available for factory employees many former agricultural workers.
- Wider distribution of wealth and the decline of land as a source of wealth.
- Increased international trade.
- Political changes reflecting the shift in economic power and addressing by government of the needs of an industrialized society.
- Growth of cities. Census figures taken from Volume 27 of the Encyclopedia Americana (p. 534) show the growth of urban areas:

Table 1. Growth of Urban Population 1790 to 1980

Year of Census	Percent Urban Population
1790	5.1
1850	15.3
1900	39.9
1920	51.2
1950	64.0
1980	73.7

- Development of working class movements.

- New patterns of authority and factory discipline, the rugged individualism of the early United States was being tamed (Encyclopedia Britannica, Vol.6, p. 304).

As tools and processes became more complex and technology changed at an increasing rate through the late 1800's and early 1900's, more training was required and more companies recognized the advantages to be gained in making training a consistent and controlled experience for new employees. A few companies recognized the necessity for and value of retraining workers, and started this process during the 1920's (Cummings and Park, p. 238).

During the 1940's the population of the United States increased 36 percent, that of the towns and cities of 8000 or more increased 90 percent (Morison, Commager, and Leuchtenburg, p. 453).

World War II came to an end, and with it came a rapid expansion of international business and the globalization of industry. Technology continued to change. World War II had changed the demographics of the United States of America work force, and laborers who had been immobile due to the traditions into which they had been born, became highly mobile (Alkin, p. 238).

The first business computer was installed by General Electric in 1952, giving business a huge push into what has become known as 'the information age'. The introduction of computers and machines doing the work of many men brought the

fear to some that workers would loose their paychecks to machines.

At Ford's Cleveland engine plant, 41 men are now doing the work of 117 in two-thirds the time; the Raytheon Company produces radio and TV circuits with one-hundredth of its regular work force. In the white-collar field, General Electric has installed a computer which is expected to save \$300,000 in clerical costs. A Westchester bank has cut its accounting staff by almost 75 percent with electronic typing machines and computers (Fryer, Feinberg, and Zalking, p. 17).

This fear of being replaced by a machine so evident in the early 1950's caused businesses, labor organizations, and individual workers to evaluate the importance of training in their business and career development.

Throughout their corporate existence a limited number of companies had always stressed employee training and education. IBM's founder Thomas John Watson, used employee education as one of the foundations in building his company. Since 1914 the IBM corporate culture had stressed education as a necessity for growth and a key to productivity, quality, and profitability. In 1933 IBM demonstrated this commitment to employee education by building a education center during the depression years (Casner-Lotto and Associates, p. 257).

With this renewed emphasis on employee training and re-training, the evaluation of corporate training and education programs then in place; cost and ROI information was still not considered important or effectively used in designing or modifying these programs.

Books written in the 1950's and 1960's for training professionals providing assistance and 'how to' in training plan design and implementation, did not consider costs or ROI. And business did not ask or require them (Goldstein, p. 230; Fryer, Feinberg, and Zalking, p. 206).

In the late 1950's training was becoming an integral part of most large businesses. Due to new social theories industrial training and education was becoming recognized as part of the continuum of formal learning that begins in the elementary school and progresses throughout an individual's life.

Not withstanding the renewed interest in training, education, and development, the importance of the training function within the organization could be determined by a looking at the company organizational chart and finding the physical location of the training office (Ulschak, pp. 22-27).

Training during the 1950's and 60's was often a part of the personnel department, located in an out of the way corner of that office, or somewhere in the building one could find. Training personnel were often cast-offs from other departments. Training had no budget, thus no impact on the bottom line. The company felt they were doing the right thing, they had a training program, so everyone was happy. Most corporations invested in training because they were convinced that higher profits would result (Godkewitsch, pp. 79-81). No one bothered to verify these assumptions. Many

companies would spend money on training because they could "see" that it was valuable (Caffarella, pp. 190-191).

As industry entered the 1970's more writers and authors started including cost analysis and cost benefits in their works (Mumford, pp. 2-10).

Kirkpatrick in writing for the American Society for Training and Development (ASTD) developed a four stage evaluation system as early as 1974. This system is still used extensively today, and remains endorsed by the ASTD. It contains the following four separate, but related segments:

1. Reaction
2. Learning
3. Behavior
4. Results.

As explained by the author:

All four segments can make a contribution in determining the effectiveness of a training program. Reaction is the easiest and perhaps the least significant. However it should be done on a regular and systematic basis. As we move into learning, behavior, and results, the problem of evaluation becomes more complex and requires more knowledge of research design and statistical measurement, plus more time and money. It is best to begin with reaction and do whatever is possible. As knowledge, time, and money permit, programs should also be evaluated for learning, behavior, and results (Kirkpatrick, p. 123).

The above quote seems to be exactly what has happened, and continues in training evaluation.

Business has recognized the need for evaluation, but has given only the first level of Dr. Kirkpatrick's model any attention. As Dr. Kirkpatrick (p. 123) has noted as you leave

one level for another, the problem becomes more complex. Industries have not wanted to leave the first level even though it is recognized as the least significant. Why? There has not been a lack of expertise, or time. Training hasn't been shown to be money making, if there is no return on the investment, why make the investment in the first place?

Many companies have felt they have gone beyond their duty when they have evaluated to the learning (or second) level. Some evaluation has been done to the behavior level (if the costs are right). Until the 1980's woefully little was done to evaluate Kirkpatrick's fourth level results.

CHANGES IN INSTRUCTIONAL METHODS

On the job training (OJT) has been utilized since the beginning of training. It is effective if the instructor is a good worker and knowledgeable. If the instructor has bad habits they will also be passed along. OJT costs are largely uncontrolled and in many cases it is not specifically managed. In 1988 it is estimated that corporations spent 180 billion dollars on OJT. As reported in Chapter IV, OJT costs are not included in corporate training budgets. The amount spent on OJT is four times the amount spent on formal corporate training programs (Cummings and Parks, p. 238).

Formally presented education, a 'school house' environment, has proven effective over the years. The personal contact with the instructor is beneficial. Many

corporations have elaborate training centers or universities that with their technically up-to-date facilities have required millions of dollars of capital investment. Some large corporations have cooperated in the use of distance learning. Digital Corporation, General Electric, Kodak, IBM, and Hewlett Packard all use the facilities of the National Technological University, a school that transmits 452 courses and five masters degree programs on a satellite system. The cost effectiveness of this system has not been a major concern (Casner-Lotto and Associates, p. 323).

As computers entered the business world to aid us in our work, they also brought about change in the methods of presenting and teaching employee education and training.

Self paced study through books and computers has been developed and is proving as effective in learning as the traditional methods. Off the shelf material is available for almost any subject, and costs can be very competitive (McMahon and Carter).

Computer based instruction (CBI) has found favor with many corporate training programs. Costs for CBI are generally one third of what a on site class with an instructor would cost (Casner-Lotto and Associates, pp. 265-266).

Computer interactive and multi-media training are gaining acceptance. The future is unlimited in developments, as both

hardware and software develop, and we constantly gain knowledge and better understanding of how and why humans learn.

Each method of instruction has proven more effective than those proceeding it, and the realization of the synergetic relationship between the methods has reduced training costs and provided a more effective product.

COST ANALYSIS

Cost analysis of training has made many developmental gains during the past fifteen years. Early studies were done in areas that provided a simple problem with a yes or no answer. Did the safety awareness program cut down accidents? Count before, after and get the answer. Replacement costs for workers were the focus of early studies, they provided a dollar savings people could see.

More complicated, multifaceted situations of today include: analysis of the program preparation, teaching methods to be used, physical facilities, and multilevel result analysis.

The initial corporate reaction (prior to the mid-1980's) to training was to decentralize the training responsibilities. As the economy shifted and company personnel with fine points on their pencils found the training offices, and added up the costs (which had often been in someone else's budget), it was found that training was a big budget item.

Even IBM, the example of training awareness and industry role model, found in 1984 that their training budget was over \$900 million a year, and they didn't have their arms around it. The trend since the mid-1980's is to centralize training efforts (Training & Development Journal, January, 1989, pp. 43-51). This consolation has increased the effectiveness of training, but even more important has been the convincing of CEO's that with training budgets so high, the training office needs to move from the basement or corner of the personnel office, and that communication channels with upper management need to be established, and the training organization needs quality people. Evaluation of the cost effectiveness of new training programs is mandatory at many companies as is the cost effectiveness of existing programs as they are re-evaluated.

SUMMARY

Training has developed over the past 300 years from a cottage industry into a recognized first-line department in many of the countries larger corporations. It is important in every large or small company.

Industrial changes, technological advances and the development and refinement of socio-economic theories have all been part of this process. Developing methods of cost analysis and ROI studies are proving the worth of training. However despite the literature supporting training

effectiveness, and even in corporations that fully support training and education programs, training personnel still face the hard facts of profitability. This is well expressed by John Marohl, Assistant Vice President of Corporate Education for NCR:

Until training personnel can stand up and toe the line with their counterparts, and evaluate what they do in the same way the manufacturing organization is evaluated, the same way field engineering is evaluated, they are never truly going to be partners (Filipczak, p.55).

Training and employee development is important to every business, large or small. Large companies clearly have the advantage in providing facilities and cash into training programs, and that will continue. Small companies need to use developed programs that are cost effective to their situation, and they need to look into joint ventures with local boards of education and community colleges.

Chapter VI will present many facts and figures, showing that training programs dollars are growing, as is the importance given to the training function within the organization. Training staffs are growing and unlike the early years of training when they were the first office to feel the budget cut blade, their budgets now remain on a par with other line-managers budgets.

CHAPTER III

METHODS AND PROCEDURES

Research into cost benefits of employee training, education, and development has been identified by Cummings and Parks (p. 243) as a research requirement. It is the authors theory that valid numerical dollar and cents data are more than a need, they offer benefits for employees and employers. Effective presentation and use of this data, especially for organizations (specifically smaller organizations) who presently have no formal training programs, goals or budgets, may provide the organization with the abilities needed to remain a viable and/or profit making enterprise. For those who are undecided on the need for establishing a training program, the data will allow decisions to be made identifying growth areas for both the company and employees.

To provide this desired result, besides being factual, data must be gathered from creditable sources, then presented in a concise and user friendly format. This presentation becomes the goal of Chapter IV.

POPULATION

The subjects of this research are historical information, and the historical researcher has no control over his subjects (Best and Kahn, p. 104). It has been suggested that historical research in education not be done. The expressed rationale is that experiments can never be replicated, nor can they be understood as we have no control over the factors that influenced the outcome, in fact we may not even realize many of the factors that were present. Presentism, the imposition of modern thought patterns on an earlier era, is not possible (Hopkins, Merrill, p. 249). To sum up in a simple phrase the reason for not conducting historical study: The future will not be similar to the past.

Acknowledging that historical events and current events have resulted from different 'causes', the fact remains that the results are the same. The loss of jobs in the mid-1960's and the current downsizing have the same result--high unemployment. By understanding what training did or did not accomplish, how it was effectively used, or not used, in a historical setting will help us better understand how to be skillful in its use today. The effectiveness of a historical study comes not from the historical circumstances caused by events that may never happen again or the variables over which we have no control, but with a better understanding of the variables we do have control over.

DATA COLLECTION

Research Complications. While disagreeing with the premise that historical research in education should not be done, historical research does create some 'complications' for the researcher. These 'complications' need to be identified and understood by both the researcher, and the reader of the study.

As the effects of the researchers understanding of these 'complications' is most manifest in the methods and procedures portion of the research, it is felt they are a necessary part of this chapter and thus are included here.

Identified 'complications' and methods of dealing with them during this research include:

- Primary source data unavailable. In historical research (as is true for any research) the ideal is to use primary source data. Often this information is proprietary and/or unavailable. Secondary sources must be used. The quality of secondary sources has been verified as much as possible by academic and professional reputation of authors and publishers. It was found that primary source data often is quoted in more than one secondary source. When this has occurred the multiple secondary sources have been compared to insure accuracy of data. Data thus corroborated has been noted in Chapter IV.

- External criticism. Is the data genuine? Can the data be verified (established) as to time, place, and authorship?

(Hopkins and Merrill, p. 257). Was the data deliberately falsified? Efforts to reduce this type error included researching multiple secondary sources and comparing not only data but any reported background information as well. In an effort to insure data are not invalid due to falsification or misrepresentation of time, place or authorship, a time line was developed. This time line listed the prevailing social theories and events; the political climate and events; and the managerial theories of the period. This allowed abnormalities to be more radially identified and further research to be conducted as required or desired.

•Is the data adequate and suitable? Is the information complete and all events and all variables documented? Events were verified as possible; variables (as provided) were evaluated. It must be understood and taken into account by the reader that when evaluating data or making conclusions from the data that all events and variables were not discovered and evaluated by the researcher, and that information is, at best, incomplete (Best and Kahn, p. 97).

Research. Most early data concerning training cost effectiveness was collected with no system of control. The research included a study of the development of design and use of instruments to gather and determine the usefulness of cost effectiveness data. To some degree the use of a measuring tool has paralleled the position of training personnel within

the organization. The more effective the instrument, the more important the training personnel are within the organization.

Objectivity. An area of constant concern to the researcher was that data would be interpreted as a 'self fulfilling prophecy' and that objectivity would be lost.

Instrument. To attempt to minimize this possible loss of objectivity a survey form (Appendix A) was developed. This survey was used during interviews conducted with individuals from the Hampton Roads geographical area identified with the professions of: training, personnel and human resources management, education, and employment services. The results of the survey are immaterial to the data collection of this study and are not reported in this document. Although limited in its use, this instrument was effective in stabilizing objectivity and the results from the nucleolus of a follow on research project in training education and development cost effectiveness.

MATERIALS

Materials used included professional periodicals and journals, research studies, and books. A wide variety of subjects were researched including: training cost effectiveness, history, sociology, statistics, education, and management.

VARIABLES

There was no control over variables. Attempts were made to identify variables affecting the outcomes of researched data. When identified they are noted. Data resulting from studies using controls and/or identified variables are noted in the results section and provide a more verifiable result.

SUMMARY

Data will be used to create a presentation for business, both large and small, to provide a basis for training decisions to be made now. Training costs and returns on investment derived from historical information will be offered as models for future needs. The benefits of training for today's market place with today's management styles and emphasis on quality will be demonstrated from historical data.

Chapter III discussed the methods and procedures used to gather data for this study. Also highlighted were possible areas of research concern. Chapter IV will present the results of the data collection. Chapter V will discuss the results of this study and provide a summary, conclusion, and recommendations based on the results of this study.

CHAPTER IV

RESEARCH FINDINGS

Chapter IV presents the findings of the historical research conducted for this study.

As reported in the May 1993 edition of HR Magazine "90 percent of training dollars spent in the United States is done by 5 percent of the companies" (p. 72). Few employers have seriously assessed the value of their training dollar and it is estimated that only ten percent keep records accurate enough to determine the cost effectiveness of training (Casner-Lotto and Associates, p. 252).

The availability of data that may be directly evaluated in determining training cost effectiveness or return on investment (ROI) is limited. This deficiency of information was not unexpected and supports a premise of this study: ROI studies need to be conducted.

In cases where cost effectiveness or ROI studies have been reported or inferred, most were after thoughts of other efforts. Even though these studies have shown cost saving relationships between instruction provided and employee skills

and/or attitudes following the training process, training costs have not been recorded, making a cost study or ROI figure impossible to produce.

Examples of these studies include: personnel studies (including those for efficiency, motivation, management development, safety), new hire indoctrinations, hiring procedures, sales, and studies evaluating the effect of various methods of instruction.

This type study has provided information such as:

Training Effectiveness. The effectiveness of industrial and government training during national crisis periods. World War I included both a massive initial effort and the soldiers and sailors vocational rehabilitation (Vocational Rehabilitation Law) after the war. Although no dollar amounts are available, the ultimate value of this vocational training is the impact that training provided to and for organizations; the men and women trained in this program provided leaders to both the military and industry when they were needed. The rehabilitative training resulted in 90 percent of those disabled by wounds or disease being brought back to civilian life as efficient, and often more so, than they were before the start of the war (Friedman, pp. 343-348).

Training effectiveness and the ability of adult learners was again shown during the depression years as the government provided evening courses for improvement of worker skills. The same results were seen as the United States entered World

War II. Although no dollar amounts were recorded the effectiveness and ultimate value of this training is a valuable learning and research resource.

Corporate Cost Reductions Due to Training. In 1968 McDonalds Corporation opened a \$500,000 training facility called 'Hamburger University' with two class rooms providing restaurant operational training for McDonald employees. This initial effort was so successful that in 1983 McDonalds University moved to a \$40 million facility with seven auditorium/class rooms, each able to accommodate 60 to 300 students. Total student capacity is 750 with 28 faculty members. Courses are presented in various languages and the University has lodging for those attending (Love, pp. 148-149). No dollar effectiveness is provided, however demonstrated by the 80 fold increase in capital investment, it is clear that training was producing positive return on investment for McDonalds.

Safety Training. In 1958 Colgate-Palmolive Company instituted a safety training program. Employees were provided a safety training program. The results of the safety record of those who were given the training was compared for the period nine months prior to, and nine months after the training. Reported accidents dropped 22 percent and the frequency rate of accidents dropped 36 percent after the training (Kirkpatrick, p. 121).

DuPont has provided safety training since the companies

inception in 1802, and presently providing each employee a 12 to 16 hours safety course. In 1980 DuPont reported only 0.039 injuries per 200,000 employees, 68 percent below the United States average (Kirkpatrick, pp. 209-214).

Federal Express provided safety training to a group of new employees comparing the safety records of those receiving the training with a control group and a group of veteran employees. Results showed an average accident cost was over 300 percent less for a trained employee than a untrained employee, and about 5 percent less than a veteran employee. Federal Express estimated the savings of this training at \$451.00 per employee per year. The company hires 1097 new employees per year, or an annual saving of \$494,747.00 (Gordon, pp. 19-25).

New Hire Procedures. The United States Post Office did a study of the effects of orientation training. One group of newly hired personnel received 35 hours of orientation training, another group of the same number received no formal orientation training. The two groups were monitored and the results showed that the group receiving the training had:

- 38 percent less negligent accidents.
- 32 percent less misdeliveries
- 58 percent mishandling valuable mail
- 50 percent less absence without reporting
- 41 percent less errors in relay operations
- 56 percent less adverse probationary reports

20 percent less reports of discourtesy.

The only area which remained unaffected by the training was late reporting, which was 8 percent greater among the group who received the training. Clearly money was being saved; personnel were more effective. Again however exact dollar amounts are not available making definitive ROI studies impossible (Casner-Lotto and Associates, p. 122).

In 1981 Corning Glass was losing new hires at between 30 - 50 percent within five years at an estimated cost of \$30,000.00 to \$40,000.00 each. The company established two groups of newly hired personnel providing one with a new indoctrination training program, the other used the old program. After two years there was a 29 percent drop in new hire losses, after five years a 34 percent drop. Corning Glass estimates a net savings of \$460,000.00 due to the new training program (Casner-Lotto and Associates, pp. 62-77).

In 1982 McDonalds hired 2,500 trainees at a cost of \$2 million. Of this group 52 percent had left prior to one year with the company, at an estimated loss of \$800.00 per person. McDonalds started a training program for interviewers with the following results: an average 34 percent drop in trainee losses (Desatnick, p. 42).

AVIS has determined the initial two week cost for a new hire is \$2,592.00. This figure provides only on-the-job training (OJT). However, this individual has a 22 percent chance of staying employed with AVIS for over one year. By

adding \$30.00 per employee to the initial two week cost AVIS can provide the individual with a self paced training course (the individual is not allowed at the counter prior to the completion of training) and the individual receiving this training has a 61 percent chance of remaining with AVIS for over a year.

Skill Training. In 1982 New England Telephone provided a training course in Listening to its telephone operators. The company estimates a yearly savings of \$2,280,000 (Casner-Lotto and Associates, p. 47).

Training provided to 76 Orange County, California, supervisors in Resource Management resulted in an annual average savings of \$3,855.00 per supervisor. Only two of the 76 who received training did not save the county money. Side effects included new skill acquisition and personal success in operations (McCanna and Story, pp. 40 - 41).

Motorola spends an estimated two percent of its payroll for training and estimated "a rate of return of about 30 times the dollars invested" (Casner-Lotto and Associates, p. 60).

General Electric has stated of its training program: it is "...crucial to [our] ability to meet the technological challenge (Casner-Lotto and Associates, p. 120).

CIGNA Corporation reported a saving of two thirds of the full cost of management training provided. This figure included participants salaries, overhead, and program development costs.

NCR using test and control groups found that sales training provided to the test group resulted in a 200 percent sales increase and a 50 percent reduction in the number of training calls. The success of this pilot program resulted in the establishment of a five year central training plan (Filipczak, p. 55).

Travenol Laboratories provided training to 160 maintenance workers. Training reduced consumption of parts, materials and supplies. Employees provided ideas on how to make parts internally and reduce purchases from outside vendors. The dollar savings were \$250,000.00. Other benefits were: better internal communication, less time off, and increased quality of decision making (Casner-Lotto and Associates, pp. 288-304).

Two goals can be found in the definition of business provided in Chapter I: 1) maximize profit and 2) reduce risk. If successful in these two endeavors, the company survives. To accomplish these goals strict fiscal and operating procedures have developed. The interest of business in training, education, and development of employees has been dominated by these same two goals: profit and risk (loss) reduction. Unlike other line functions in the business world, training, education, and development programs have not developed the same fiscal and operational procedures. The programs have been acknowledged by management, then somehow left to develop as the situation allows.

Training Budgets. In October 1982 Training, a monthly magazine published by Lakewood Publications, Inc. for the use of training professionals and managers, started an annual series entitled "U.S. Training Census and Trends Report". This was the first publication of a training industry report. The results of the annual census and trends report have gained wide acceptance by other authors and are used as authoritative information by them. The studies have a 95% confidence level (Training, October, 1991, p.32).

A review of the series of reports for the period 1982 through 1992 reveals the following information.

Training budgets have remained fairly constant over the past ten years, with a noticeable increase in 1984. Other years showed a slight upward trend, usually just above the rate of inflation.

In 1991 training budgets fell by 17 percent, coupled with a 5.6 percent rate of inflation the loss in training budget dollars was over 22 percent. The year 1992 showed an increase even with the rate of inflation. The total hours of training was constant throughout the ten year period. James L. Medoff in the October 1992 edition of Training magazine (p. 45) states that training hours have remained unchanged since 1969. Training dollars spent have remained statistically constant.

Over the years of the Training annual report, the method of determining the dollar figure for training budgets was modified (in 1986). Figures for the years 1986 through 1992

have been revised from those presented in the original articles to reflect (as closely as possible) the same areas in determining dollar costs. Training dollars spent from 1982 through 1992 show an upward trend, averaging above the inflation rate. The number of employees receiving training has remained constant (Table 2). The distribution of budgets, using the three major budget areas: salaries, overhead, and outside purchases has remained constant over the five year period 1987 through 1992 (Table 2 and Figure 1).

The categories of personnel receiving training also has shown little change (Figure 2), although there has been a slight trend to provide executives and senior managers less training. The subjects of training provided have remained similar, each increasing in the percentage of corporations offering training in that area (Table 3).

The dollar amounts spent on vocational training by corporations from 1917 through 1949 is provided as historical information and will be used in Chapter V in establishing a statistical comparison with the data from 1982 to 1992 (Table 4).

The data from 1907 through 1949 shows dramatic increases in training dollars during World War I and II, and little decrease in corporation training dollars during the depression years. Data show a general trend of increased dollars spent on training.

Table 2. Training Budgets 1982 to 1992 (not including on-the-job training)

Year	Total Training Budget in Billion of Dollars*	Estimated Employees Receiving Training*	Total Hours of Training Provided (Billions of Hours)*	Percent Budget Change	Inflation Rate**
1982	2.95	n/a	n/a		
1983	3.06	n/a	n/a	3.5	4.3
1984	4.2	n/a	n/a	27.	4.3
1985	4.4	n/a	1.37	4.5	3.7
1986	6.1 (29)	36.5	1.3	28.	2.0
1987	6.9 (32)	38.8	1.2	11.	4.0
1988	7.7 (39.6)	37.5	1.2	10.	4.7
1989	9.3 (44.4)	35.5	1.2	17.	5.7
1990	10.2 (45.5)	39.5	1.3	8.8	6.7
1991	8.7 (43.2)	36.8	1.2	-17.	5.6
1992	(45)	40.9	1.3	4	4.1

Note: The method for budget computations changed in 1986, see text for further explanation. Figures in parentheses are the reported figures, those outside the parentheses are computations to align all years to use the same base.

*Data from Training, October issue 1982 through 1992.

**Data from Economic Report of the President, January, 1993. U.S. Government Printing Office, p. 411.

Training Budgets 1987 and 1992

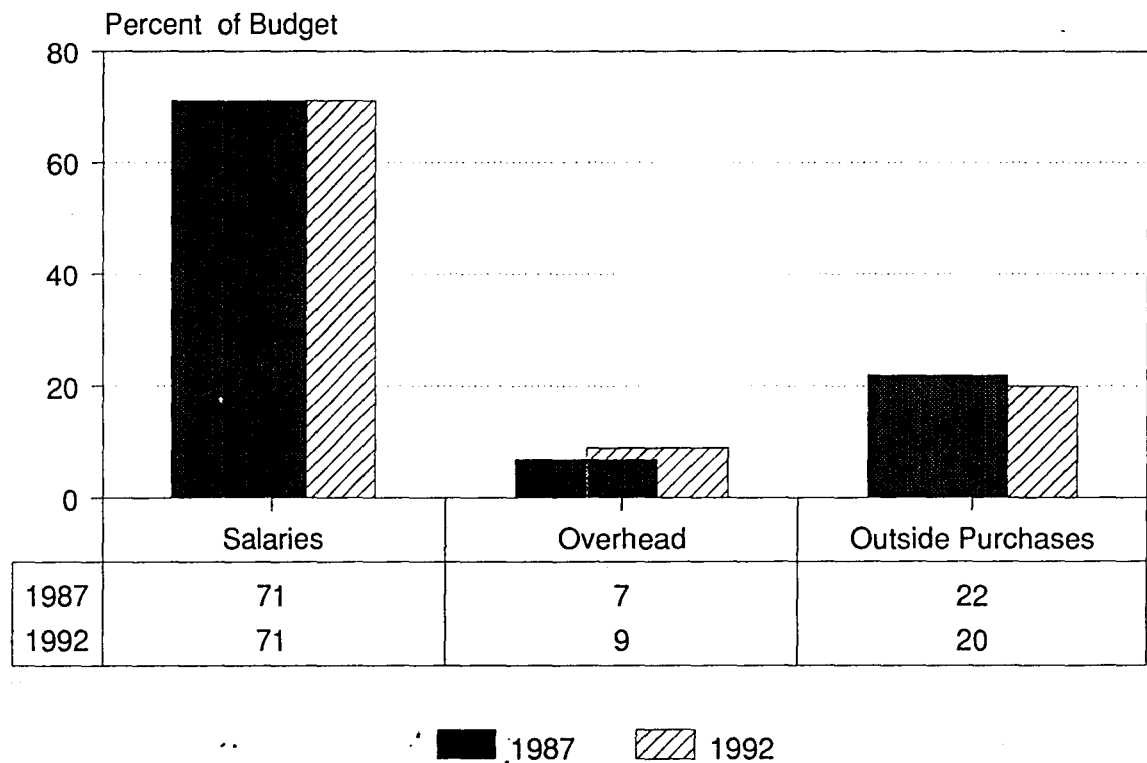


Figure 1. Training Budgets 1987 and 1992

Who Receives Training

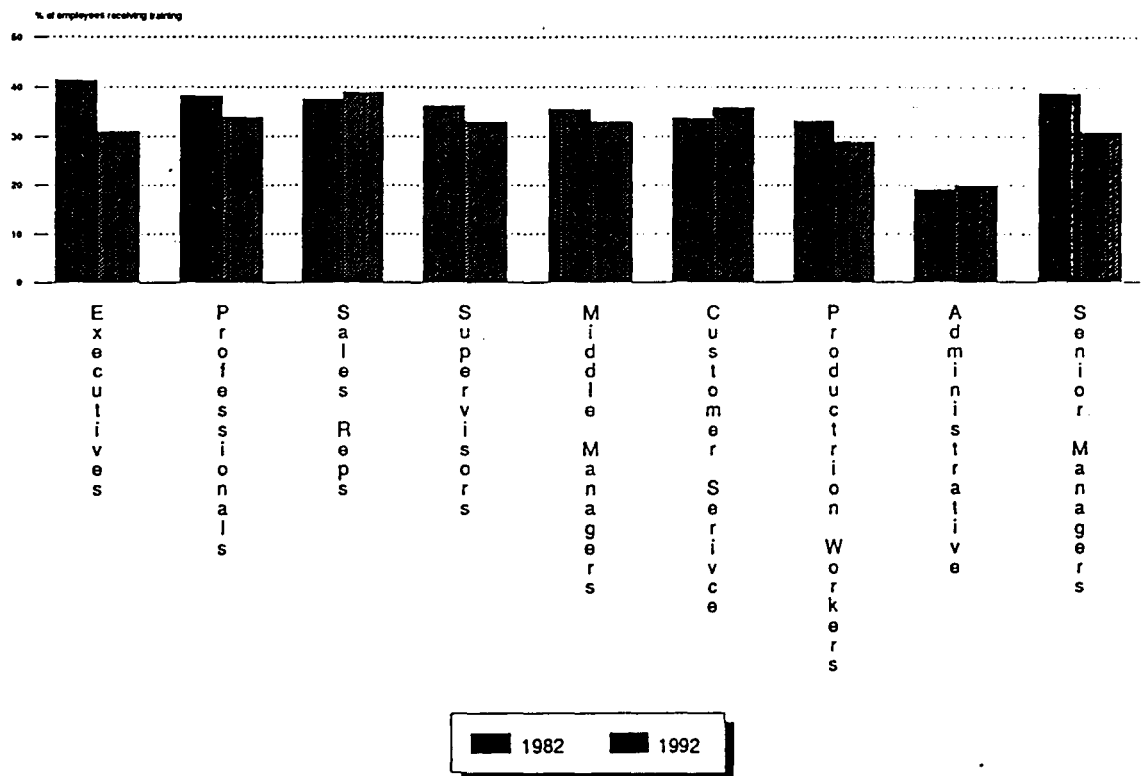


Figure 2. Who Receives Training

Table 3. The topics of training provided by organizations with over 50 employees.

Types of Training	1985	1992	Percent Change
Management and Development Skills	74.3	86.0	11.7
Supervisory Skills	73.7	83.0	9.3
Technical Skills/Knowledge Updating	72.7	82.0	9.3
Communication Skills	66.8	84.0	17.2
Customer Relations/Services	63.6	73.0	9.4
Executive Development	56.5	73.0	16.5
New Methods/Procedures	58.5	75.0	16.5
Sales Skills	54.1	55.0	0.9
Clerical/Secretarial Skills	52.9	65.0	12.1
Personal Growth	51.9	69.0	17.1
Computer Literacy/Basic Computer Skills	48.2	86.0	37.8
Employee/Labor Relations	44.9	59.0	14.1
Disease Prevention/Health Promotion	38.9	57.0	18.1
Customer Education	35.7	57.0	21.3
Remedial/Basic Education	18.0	40.0	22.0

SUMMARY

Researched data has been presented in this chapter. Chapter V will summarize and provide an evaluation of the data; conclusions will be presented as will recommendations for further study.

Table 4. Dollars (in millions) spent on Vocational Education by Industry between the years 1918 and 1949.

Year	Dollars Spent (Millions)	Percent Change	Year	Dollars Spent (Millions)	Percent Change
1918	1		1934	7	-25
1919	2	50	1935	9.2	23
1920	2.5	20	1936	9.2	0
1921	3.8	33	1937	9.5	3
1922	4	5	1938	17.5	45
1923	4.2	5	1939	19	8
1924	4.5	6.7	1940	20	5
1925	6	25	1941	20	0
1926	6.2	3	1942	20.3	2
1927	6.5	4	1943	20	-2
1928	6.5	0	1944	20	0
1929	6.5	0	1945	20.5	2.5
1930	7	7	1946	19	-7
1931	8	12	1947	21	10
1932	8.5	6	1948	26	18.7
1933	9.5	10	1949	24	-7

Data from Dowling and Drolet, p. 362.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Chapter I provided an introduction and stated the research problem. Research goals were provided to establish the significance of this study. Limitations were outlined, assumptions stated, terms defined and procedures explained. Chapter II provided a review of literature, presenting a history of training and cost analysis of training programs. Chapter III explained in detail methods and procedures used in research for this paper. Chapter IV presented statistical findings. Chapter V presents the summary of research data, conclusions of the study, and recommendations for further research.

SUMMARY

The following background information concerning the research topic is provided. In a recently concluded graduate class attended as part of a training technology (human resources development) program the following was noted: the content was excellent, the instruction superb and all course objectives were met. However on the first meeting of the class a discussion of the perceived relative importance of

leadership and management skills occurred. This subject continued throughout the course and became one of the most important learning experiences of the course.

Continually surprising was that class members were sure that leadership and associated skills were the pattern to follow; management and associated crafts had little relevancy in class members thinking.

The reason for this became obvious as introductions were made and acquaintances formed: The class was eighty percent from backgrounds that required no knowledge of financial decisions at a level that would (or could) effect an organizations ability to prosper, survive or collapse.

Thus was planted the seed for this study. What germinated the seed was the authors desire to demonstrate that training was cost effective, and armed with researched "proof" be able to convince human resources professionals they needed to be more than leaders, they must be able to show to businesses that training investment is money well spent and impacts positively on the bottom line. This is seen as especially important for smaller businesses who feel they do not have money to spend on training or feel they have no need for a training program.

The eighty percent distribution of those supporting leadership theories in that first class may be more typical than originally realized. In the October 1985 issue of Training magazine is found the following (p. 75):

Table 5. Educational and Vocational Backgrounds of Personnel Working as Trainers.

WHERE DO TRAINERS COME FROM?	
Education	17.6
Business/Management	16.0
Social Science	14.7
Psychology	10.8
Engineering	5.5
Letters	5.4
Communications	4.4
Health Services	3.2
Physical Sciences	2.9
Biological Sciences	2.6
Industrial Relations	2.1
HRD Training and Development	1.9
Other	13.1

The above categories indicate approximately twenty percent of trainers would come from backgrounds requiring knowledge of cost analysis procedures (16 percent business management and 4 percent of the 13.1 percent of the "other" category. This percentage parallels that of corporations who are conducting training cost analysis (Cummings and Park, p. 238).

Does this indicate trainers are coming from the wrong academic background? No, but it does show we need to expand the training requirements and possibly alter the curriculum for training professionals.

CONCLUSIONS

The demonstrated attitude towards cost effectiveness

analysis of training programs as researched in books and journal/periodical articles and written by training professionals, combined with the dearth of information on return on investment type studies, even though improving in the past decade, would confirm the lack of interest by training professionals in this area of cost benefit and ROI analysis.

It seems intrinsic that training and education would benefit individuals and be good for company profitability also. Until recently training provided by employers to employees has been minimal; sufficient only to ensure a margin of profit for the company. Often even unions have not pushed for more than initial training. Throughout history, education (or a lack of it) has been used to hold groups of people hostage, to limit potential, to ensure the especial status of another group. In A.D. 30 a wise man of the American continent named Nephi wrote "some were ignorant because of their poverty, and others did receive great learning because of their riches".

Over the past decade management theories, changes in the world economy, and a renewed interest in quality, have increased employee participation in company planning. With this involvement human resources development (HRD) and employee training have been given a position on the stage, and though it might not be center stage, it is in a spot light.

This research shows that there is solid economic rational

in training, educating, and developing employees of all levels.

It has become apparent, however, that the economic rationale may be easy to see and has been presented as a necessary by industry leaders, remains unproven by effective actions on the part of those providing the service. Statistically the rate of dollars spent on training by industry since 1907 has increased by a average of approximately 8 percent per year. Training must be effective to continue to be funded by industry at a rate often equal to capital expenditures. Continually funded by corporations who must scrutinize every dollar spent, yet somehow have failed to require the same accounting procedures for the training department.

Research has shown, although unfortunately not been proven, that the research goals have been met. Organizations providing training opportunities are able to add to their profitability. This occurs through increased employee productivity, lower employee costs, and a better (quality) product. Increasing the capabilities and skills of workers also enhances the corporations leadership and management position, providing the necessary foundation to operate and compete in the world market.

RECOMMENDATIONS

Training professionals need to provide ROI estimates for

training programs as part of the initial development process, this may even require that this information be volunteered if it is not requested. Actual information after training is conducted must also be presented.

Training professionals must stay away from the sirens of "it can't be measured; don't do it", and use the tools presently available and develop more effective measuring devices for ROI.

Training professionals must listen to industry leaders when they say the language of business must be learned. If we have been able to do what we have with few facts and lots of intuition, think what we can do with facts to support requests for funding increases, the same intuition and lots of work.

Continued research in training ROI procedures and analysis is needed.

Researchers must conduct studies on ROI's use outside the United States, and use this information to determine if there is a relationship between training effectiveness and management procedures in these countries.

Use the tools that we have and encourage the increased use of ROI training studies in the United States. We must evaluate the reasons that ROI studies have not been done. This information should help in better developing methods for more effective cost analysis. This researcher is convinced that return on investment (ROI) studies were not done because:

- 1) Trainers could not talk the language of management.

Management did not require trainers to learn the language, nor did they require the same standards of accountability they did of line managers (maybe this is why training was not a line manager position?).

2) Trainers were not sure they could prove that training and employee education added to the bottom line. There was (and is) a fear that training does not produce an outcome that can be tied to the bottom line.

3) Trainers did not know how to conduct ROI studies, did not have the time or the budget to do it.

4) Everyone had the "gut feel" that training contributed to the financial prosperity of the corporation.

5) Training was a good thing, and it looked good in public relations work, thus it was worth the money that was spent on it

6) No one knew how much money was being spent on training, and it appears that until the late 1980's no one cared.

7. If a new development is useful, easy to master, and nonthreatening, the likelihood of acceptance is very good. Training is often viewed as hard to master and threatening to the present status.

8. The prevailing idea that the really vital outcomes of the educational process cannot be quantified or measured, that only the "trivial ones" can be.

9. Training goals are stated in terms that make measurement difficult if not impossible.

THE BOTTOM LINE

The bottom line has been used many times, therefore it is fitting that this paper close with one. The bottom line is not favorable when reviewing the past stewardship of corporate trainers. True results of training have been 'satisfactory', but trainers have failed to go beyond this 'satisfactory' point. Even though told many times of the need for accountability, they have not understood, and have not established cost effectiveness in training programs. They have not provided a solid financial history to build on. Actions have always been in response to outside events or pressures. The bottom line offers hope that the errors of the past will not be repeated. When we realize that approximately five percent of training dollars are evaluated for cost effectiveness it is clear that we have a lot of training to do for ourselves. We have an enormous growth potential.

We must become proactive and provide the added energy to break past the 'satisfactory' point. As trainers we are at a point in our development analogous to an amount of water just at the boiling point. To produce the steam needed to get some work done, a large amount of energy (much more than that needed just to raise the temperature) is needed. We have to

provide a larger amount of effort to produce the steam to start the machine moving.

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APPENDIX A

QUESTIONNAIRE

1. Does your company provide:
 - a. Training (to help employees perform their present job assignments).
 - (1) Yes
 - (2) No
 - b. Education (to prepare employees for advancement to jobs within the company).
 - (3) Yes
 - (4) No
 - c. Development (to help employees in self development. This may be financial assistance for: college courses, adult education courses, etc. This benefit is provided without any specific advancement within the company as a motive).
 - (5) Yes
 - (6) No
2. Does your company keep records of training costs.
 - (7) Yes
 - (8) No
3. Do you use prepared material developed by other than company personnel for training.
 - (9) Yes
 - (10) No
4. Approximately what percent of company profits are spent for training, education and development?
 - (11) 1%
 - (12) 2%
 - (13) 3%
 - (14) 4%
 - (15) 5%
 - (16) over 5%
 - (17) unknown
5. Do you feel that new hire entry level employees are receiving the vocational training they need in public schools?
 - (18) Yes
 - (19) No

6. Do you feel that new hire entry level employees are receiving the social skill training (able to smoothly enter the work force) from public schools.

(20) Yes

(21) No

7. Do you hire entry level employees from private technical schools?

(22) Yes

(23) No

8. Please indicate the general knowledge level of new hires from private technical schools.

(24) Low

(25) Satisfactory

(26) Exceptional

9. Do you hire entry level employees from public vocational education programs (high school, state or city funded vocational training schools).

(27) Yes

(28) No

10. Please indicate the general knowledge level of new hires from public vocational education programs.

(29) Low

(30) Satisfactory

(31) Exceptional

11. Does your company have an apprenticeship program?

(32) Yes

(33) No

12. If yes how long is it?

(34) Less than one year.

(35) One year

(36) Less than two years

(37) Over two years.

13. Do you feel that training, education, and development provided or sponsored by your company adds to the profitability of your company.

(38) Yes

(39) No

14. What is the company employee turnover rate.

(40) Low

(41) Moderate

(42) High

15. Do you think that a more specific vocational education program in the public secondary school or community colleges would improve the knowledge of entry level employees.

(43) Yes

(44) No

16. Is training and education conducted by your company done:

(45) On site

(46) At a corporate owned facility

(47) Contracted?

17. What type feedback is received from training held?

(48) Employee critiques

(49) Manager critiques

(50) Other.

18. Do (51) all, (52) some, (53) no, employees receive written evaluations at least once a year?

19. How many employees in your company?

(54) Less than ten

(55) Less than 25

(56) Less than 50

(57) Less than 100

(58) Over 100

20. Are reading skills important for new hire entry level employee non-clerical positions?

(59) Yes

(60) No

21. Do entry level positions require a high school diploma?

(61) Yes

(62) No

22. Would a nationally recognized certificate signifying completion of training and certifying the skill level of an applicant be beneficial to you in a hiring decision.

(63) Yes

(64) No

23. Do you calculate return on investment (ROI) for your training?

(65) Yes

(66) No