OKLAHOMA DEPARTMENT OF CAREER AND TECHNOLOGY EDUCATION

EXISTING INDUSTRY TRAINING PROGRAM: ECONOMIC IMPACT,

RETURN ON INVESTMENT, AND CUSTOMER SATISFACTION

By

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CHAPTER I

INTRODUCTION

Oklahoma businesses face myriad challenges in today's economy.

One of the greatest of these challenges is the need to maintain a well-trained workforce.

The longevity of a well-trained workforce is a serious concern for all business managers

and owners. According to the Southport Institute, a conservative adult education think

tank located in Washington, D.C., less than five percent of all small businesses in the

U.S. provide any training at all for their employees. This reality, combined with the fact

that 57 percent of the workforce is in small businesses, creates a real dilemma as to how

to re-train the American workforce (Presley, 1995). Regular turnover of staffing causes

Oklahoma businesses to spend already tight resources to continually train and re-train

new employees. It is the mission of the Oklahoma career technology center system to

assist in providing the needed training and re-training of staff for Oklahoma businesses.

This study examined the "business of education" as it relates to the training

conducted for Oklahoma businesses by the Oklahoma Department of Career and

Technology Education (ODCTE). This training is provided through the Existing Industry

Training program conducted in the Oklahoma technology centers throughout the state.

This is the only facet of training conducted by ODCTE that is looked at in this research

study.

The Oklahoma Department of Career and Technology Education (ODCTE)

described the state's technology center system as follows:

The foundation for Oklahoma's statewide network of 29 technology center

districts, operating a total of 54 campuses statewide, was laid in 1966

when Oklahoma voters approved a constitutional amendment allowing the

establishment of what were then called area vocational-technical schools.

Oklahoma's technology centers serve full-time students, both high school

pupils and adult learners. Also, district residents, usually adults, flock to

the centers to learn new skills or enhance existing ones in popular short-

term courses. While high school students attend tuition-free, adult students

are charged nominal tuition to offset costs. Students are frequently able to

earn credit hours for their studies from local colleges. In FY02, more than

14,000 high school students enrolled in Oklahoma's technology centers.

Most attend approximately three hours per day, either in the morning or

the afternoon. Due to increased graduation requirements, centers are

adapting schedules and pursuing other avenues to provide students with

the flexibility they need to attend. The centers also serve more than 11,000

full-time adult enrollments. In FY03, enrollment in the *Career*Tech

system's business and industry training programs offered by Oklahoma's

technology centers totaled more than 315,000. These programs are

primarily in three different categories: industry-specific and existing

industry, adult and career development, and the Training for Industry

Program (TIP) (ODCTE, 2005).

One program conducted by the CareerTech technology centers in support of

Oklahoma business is the Existing Industry Training Program. Existing industry training

programs are customized to fit the needs of businesses or industries already located in

Oklahoma. They can be offered either at a technology center or on site at a business or industry. The programs prepare employees to operate new equipment or emerging technology or to meet the changing demographics of the workforce. Training can range from three hours to several hundred hours. One particularly successful program in this arena is safety training. Results of this training have been impressive in dramatically reducing workplace injuries, and as a result, saving millions of dollars in workers' compensation premiums for Oklahoma companies (ODCTE, 2005).

The Existing Industry Training program has been marketed and described by the ODCTE (2000) as follows:

> Existing industries are the cornerstone of Oklahoma's economy. That's why we're committed to helping you make sure your existing employees are up-to-speed on the latest technologies and processes. Intended to serve companies that bring new dollars into the state (for example, manufacturers, distribution centers and business service centers), the Existing Industry Training program provides customized training and services at little or no cost to the company. The program can be used for upgrade training for your existing workforce when you install new equipment, processes, technology, computerized manufacturing applications and/or training for new product lines. It can also be used for supervisory training.

This program is not to be confused with the ODCTE's Training for Industry Program (TIP). The TIP program is similar to the Existing Industry Training program in that it is related to new job creation. However, the TIP program is available to businesses

that are new to the State of Oklahoma versus those businesses that already reside in the state (ODCTE, 2000).

Despite its history of service to Oklahoma business, the Existing Industry Training program has not been subjected to systematic economic impact analysis or to a study of its return on investment (ROI). ROI is a relatively new form of analysis that is currently an important component in the evaluation of training programs.

Economic impact means many different things to individuals and organizations. Merriam Webster (2005) defined "economic" as "of, relating to, or based on the production, distribution, and consumption of goods and services" (p.12) and "impact" as, "impinge on," "strike forcefully," and "cause to strike forcefully" (p. 14). Vogelsong, Graefe, and Estes (2001) stated that economic impact studies provide information on the amount and nature of spending generated by an agency/organization, facility, program, or event and are completed for a variety of purposes. To continue with this line of thinking, it was the intention of this researcher to describe the way in which the CareerTech technology centers have impacted the economies of those locales in which they are located through the use of the Existing Industry Training program.

Return on Investment (ROI) refers to knowing what one is getting in return for an investment of money, time, and other resources. In the workplace learning and performance field, ROI means calculating the return on the training or HRD investments (ASTD, 2002). Return on investment is often hard to measure but still worthy of review. Staples (2003) discussed this situation:

> The problem is, while billions are being poured into professional
> education, the human-resource or training execs who typically oversee the
> expenditure have few tools to prove, measurably and unequivocally, that

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this nebulous thing called learning has stuck. "The goal, ultimately, is to quantify how much a company's investment in people boosts the bottom line," says Allan Bailey, CEO of Learning Designs Online, a training consulting form based in Mississauga, Ont. "It's all coming from a heightened awareness of the need to monitor more closely what [trainers] are doing, and how they're doing it" (p. 123).

Statement of the Problem

Oklahoma career technology centers tout themselves as being the "economic development" wing of Oklahoma education. One particular program within the Oklahoma system having an economic mission is the Existing Industry Training program. Despite its avowed economic focus, currently a lack of empirical data existing to demonstrate a positive return on investment, economic impact, and customer satisfaction from training conducted under this program for by the Career Technology (CareerTech) system. In the current state and national economic climate, accountability is a huge concern for all who are involved in education. The taxpayers demand accountability, and legislation such as No Child Left Behind reinforces the need for education to demonstrate successful outcomes. Oklahoma legislators and others continue to question the way the Oklahoma CareerTech system spends its substantial allotted appropriations. While this study did not look at the CareerTech system as a whole, it did specifically examine (1) the Existing Industry Training program and how it has impacted Oklahoma economically since its inception and (2) how satisfied Oklahoma businesses are with its services. As a system, the CareerTech technology centers believe they produce good results for Oklahoma business. However, this is really an assumption due to a lack of empirical data to support this conclusion. In conducting this study, it was the position of this researcher

that the CareerTech technology center system could be strengthened substantially if this belief could be validated empirically.

Purpose of the Study

The purpose of this study was to describe the return on investment (ROI), the economic impact, and the customer satisfaction with training completed (for Oklahoma businesses and individual Oklahomans) under the Existing Industry Training program by CareerTech technology centers. Companies that invest more heavily in workplace learning are generally more successful, more profitable and more highly valued on Wall Street (Densford, 1999). This study examined the effects of investment in workplace learning in Oklahoma by describing and making public return on investment, economic impact, and customer satisfaction data relating to training completed for business and industry clientele and full-time program completers at Oklahoma CareerTech centers.

Specifically, this study sought to:

1. Identify and measure the economic impact and return on investment (ROI) of training completed within the context of the Existing Industry Training program (for Oklahoma businesses)by Oklahoma technology centers.

2. Describe the customer satisfaction of those served by the Existing Industry Training program provided by the Oklahoma technology center districts.

Research Questions

This study was guided by four research questions:

1. What is the economic impact and return on investment (ROI) of training completed within the context of the Existing Industry Training program (for Oklahoma businesses) by Oklahoma career technology centers?

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2. What is the general level of customer satisfaction with training conducted in the context of the Existing Industry Training program by Oklahoma career technology centers for selected Oklahoma businesses?

3. Are there differences in the level of customer satisfaction with training conducted in the context of the Existing Industry Training program by Oklahoma career technology centers for selected Oklahoma businesses based on size of community in which the business resides, number of individuals employed by the business, or annual gross sales of the business?

4. How do primary stakeholders (focus group) in the Existing Industry Training program perceive the findings of this study and potential impacts on the program?

Question number one was addressed by analyzing archived data collected from the Business and Industry Services (BIS) division of the Oklahoma Department of Career and Technology Education (ODCTE) in Stillwater, Oklahoma. This data was available for all 29 technology center school districts. The researcher also obtained additional necessary data from a questionnaire survey concerning economic impact and return on investment.

Question numbers two and three were addressed by developing and administering a customer satisfaction questionnaire that was mailed to all past users of training conducted under the Existing Industry Training program. Question four was addressed through a focus group procedure during which the researcher presented the study data to relevant stakeholders for analysis and discussion.

Assumptions and Limitations of the Study

The following assumptions and limitations were accepted in the conduct of this study:

1. It was assumed that respondents answered accurately and honestly.

2. The possibility of misinterpretation of questions or statements existed because the research questionnaire was administered by mail and the researcher was not present at businesses during completion of the questionnaire.

3. It was assumed that archived economic data about training completed for Oklahoma businesses within the context of the Existing Industry Training program was collected by the ODCTE in an open and honest manner from accurate data provided by Oklahoma businesses.

4. The sample obtained for the study was small and not strongly representative of the population. This created major limitations on the generalization of findings beyond the sample.

Operational Definitions

The following definitions were used in the context of this study:

1. BIS: Business and Industry Services: A division within each Oklahoma technology center that concentrates on serving the training needs of businesses and industries located within their particular district and surrounding areas.

2. Career and Technical Education: Formerly vocational education. In Oklahoma, the general designation is Career and Technology Education or CareerTech.

3. Customer Satisfaction: Indication of approval by Oklahoma businesses participating in the Existing Industry Training program, as measured by responses to several questions using a five – point Likert scale for this study.

4. Economic Impact: The amount of change in a local or larger economy as a result of the training completed within the context of the Existing Industry Training program by an Oklahoma technology center.

5.   Oklahoma Technology Center: A technical school that is part of a larger statewide system consisting of 29 districts and 54 campuses.

6.   Return on Investment: The amount of positive effect, both financial and intangible, in relation to the amount of financial and human capital invested in a training project completed within the context of the Existing Industry Training program by an Oklahoma technology center. Operationally, the calculation of ROI is a financial analysis that compares the costs (C) of a program to its net benefits (B). It is expressed as a percent, derived from the basic formula (Phillips, 2002):

$$ROI = \frac{B - C \text{ or Net Benefit}}{C} \quad x \quad 100$$

The financial ROI is calculated with the following formula:

$$ROI = \frac{B - C \text{ or Net Benefit}}{C} \quad x \quad 100$$

The Researcher in Context

The researcher spent several years in manufacturing prior to entering education and training.   The expectation in this environment was that an employee must produce at a given rate to retain employment and, therefore, the employee retained a certain amount of worth to the organization. It is important to understand that the researcher works daily within the CareerTech environment and has personal knowledge of the Existing Industry Training Program. The researcher believed he had developed those necessary relationships over 10 years of tenure within the system that would help in gaining access to needed data and ensure participation in this study by other ODCTE personnel and Oklahoma businesses. It was the hope of this researcher to show empirically that the efforts of CareerTech yield a positive return on investment (ROI) for the taxpayers of the State of Oklahoma. However, it was the goal of this research to determine, empirically,

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the amount of worth, positive or negative, that the Existing Industry Training program yields to these same taxpayers.

Significance of the Study

This research provided a snapshot of customer satisfaction and return on investment (ROI) as they pertain to training conducted under the Existing Industry Training programs for business and industry by Oklahoma technology centers. ROI is an integral part of every day operations and cannot be ignored, whether the professional belongs to the public or private sector (Williams, 2003, ¶ 8). It is particularly critical to establish and report ROI on training programs in a time of heightened public demand for accountability in education and training programs.

The findings of this research will serve business and industry coordinators, school administrators, and school boards of Oklahoma technology centers in a variety of ways. They can be of considerable use in the area of marketing training to business and industry. The study is potentially important to all individuals within the Oklahoma CareerTech technology center system charged with serving the BIS clientele and other community members within the centers' respective districts. The findings will enable these individuals to take a critical look at how they market to these BIS clients and to support their marketing efforts with empirical evidence.

Furthermore, the study will help school superintendents address future funding requirements with their political representatives. It highlights the effectiveness of the Oklahoma career and technology center system in meeting its mission and illuminates areas where improvements can be made. At this writing, accountability is a major issue among Oklahoma technology centers, their administrators, Oklahoma legislators, and the citizens of Oklahoma. It is the hope of this researcher that providing empirical analysis

of the effectiveness of Oklahoma technology centers in one of their primary missions

through the findings of this study will provide ODCTE with data to enhance their efforts

as it relates to economic development in the state.

CHAPTER II

REVIEW OF LITERATURE

Introduction

In a time of increasing corporate, legislative, and public demand for sound

financial stewardship and fiscal accountability, training programs are no longer exempt

from the necessity to demonstrate their financial value to the organizations that sponsor

them. Unfortunately, trainers, teachers, and other educators have not been well schooled

in modern techniques for producing evidence of their productivity in terms of dollar

values. Brauchle and Schmidt stated that this "… puts trainers at a disadvantage when

dealing with their more financially literate colleagues" (2004, p. 71).

School administrators with financial control in the education world, like their

counterparts in the business world, are currently concerned with the monetary benefits of

instructional programs. It is increasingly true that:

> The costs of training are usually measured in dollars or translated to
>
> dollars, a powerful measuring scale that has enormous emotional appeal to
>
> managers. Next to a dollar measure of costs, questionnaires or
>
> assumptions based on a needs analysis often seem like weak arguments.
>
> What is needed are methods that can show the value of training in terms
>
> that managers can understand (Brauchle & Schmidt, 2004, p. 71).

While most trainers and educators may agree with Parry (1996) that "…training

doesn't cost... it pays, and HRD is an investment, not an expense" (p. 72),   it is

increasingly advantageous to be able to demonstrate the financial benefit of training

programs. Numerous tools and techniques have been deployed to assist with this goal.

Brauchle and Schmidt (2004) reviewed 11 training assessment strategies using both soft

and hard data, and ranging in rigor and overall value from low to high.

Despite the existence of many of these assessment strategies for more than a

decade, a common criticism of training programs has often been that their financial return

on investment is not measured (Mendoza, 1995). Other researchers have also this to be

true in recent years. Fagiano (1995) asserted that "The statistics everyone wants, those

that would tell us the return on training dollars spent, have proven to be stubbornly

elusive" (p. 12).

<center>Kirkpatrick's Model and ROI</center>

It was in response to this need that Jack Phillips pioneered and codified the Return

on Investment, or ROI, process for assessing the financial value of training programs.

Phillips' concept of ROI was grounded in the well established four-level evaluation

model created by Donald Kirkpatrick to classify training outcomes and provide a

framework for explaining evaluation (Brauchle & Schmidt, 2004).

Kirkpatrick's model (1996) provided one of the earliest and most widely

accepted theoretical frameworks, the four levels of evaluation, within which the context

of return on investment (ROI) can be viewed and studied. Kirkpatrick identified four

levels of evaluation used in, and leading up to, measuring return on investment (ROI).

Kirkpatrick's evaluation levels are:

Level One: Reaction or Attitudes. Were the participants pleased with

the training program as presented? Kirkpatrick (1996)

described reaction as how well trainees like a program.

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Abernathy (1999) summarized Level 1 as asking, "Did you like the training?" (p. 20).

Level Two: Learning. Did the participants learn from the training program? Brown & Seidner (1998) described Level 2 as the extent to which participants changed attitudes, developed knowledge, or increased skills by attending a training program.

Level Three: Application or Behavior. Was the behavior of the participants changed as a result of the training program? Did they apply what they learned in their job performance? Abernathy (1999) asserted that Level 3 asks participants the question, "Did the training help you do your job better and increase performance?" (p. 20).

Level Four: Results. Did the participants' change in behavior result in a positive change in their organizations? Did it have a positive impact on the organizations' bottom lines? Kirkpatrick (1996) suggested that final results could include increased production, improved quality, decreased costs, reduced accidents, increased sales, reduced turnover, or higher profits. Abernathy (1999) claimed that Level 4 assessment asked, "Did the company…increase profits, customer satisfaction, and so forth as a result of the training?" (p. 20).

While Kirkpatrick's model has been well accepted and highly successful as a framework for conceptualizing assessment of training programs, some researchers have charged that it stops short of reaching full analysis of costs and benefits (Bernthal, 1995). Phillips addressed this by adding a fifth level to Kirkpatrick's four levels of evaluation, and called it return on investment or ROI. In proposing his fifth level of evaluation, Phillips (1997) argued that Kirkpatrick's previous four did not make specific enough correlation between dollars spent on training and dollars produced by the training. More conservative and rigorous than the older cost-benefit analysis (CBA), ROI addresses the issue of whether an initiative or program is financially worth the money put into it. It compares training's monetary benefits to its costs and essentially asks whether a program has a bottom-line impact that justifies its cost (L.J. Ausburn, personal communication, October 15, 2003; Brauchle & Schmidt, 2004). Phillips (2002) explained ROI conceptually as follows:

> The ROI calculation is the financial rationale used by accountants, chief financial officers, and executives to measure the return on all investments. The term ROI is already familiar to all executives and operational managers. It is not a new fly-by-night catch phrase with an unknown meaning that can only be explained through elaborate presentations and is only understood in a very small area of the organization (p. 100).

Brauchle and Schmidt (2004) agreed with Phillips' assertion that ROI is not new in either concept or importance. They stated that:

> Return on investment has been a critical issue for trainers and top executives in recent years and is a topic frequently listed on

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meeting agendas. This technique probably should receive more

emphasis from educators than it has in the past (p. 77).

As indicated by Brauchle and Schmidt (2004), the use of ROI is currently much in

demand in the analysis and evaluation of training programs. To admit to clients and

senior managers that the impact of training cannot be measured would suggest that

training does not add value or that training need not be subjected to accountability

processes. In practice, ROI must be explored, considered, and ultimately implemented in

most organizations (Phillips, 1997). A good example of the value of ROI is provided by

the experience of Motorola. At that company, ROI was extremely useful in justifying

training programs. Calculating an ROI on the billions spent for training eliminated the

concern of senior executives. After the company determined in the 1980s that its quality

and sales training programs were returning $30 to $33 for every dollar invested, the

positive effect of education was never questioned (Densford, 1999). Many business

leaders still view training as an overhead expense. With thorough ROI evaluations,

training departments can convince businesses to view them as partners in creating the

assets that are crucial to organizational success (Davidore & Schroeder, 1992).

Training specialists and e-learning advocates have suggested that the partnership

between a training department and its sponsoring organization involves three groups

within the organization, and that each group may be interested in different levels of

evaluation. The senior management group is concerned with financials such as profit,

cash flow, and stock price, and thus may be most interested in ROI or Level 5 evaluation.

The supervisor / manager group, by contrast, is more likely to be concerned with issues

such as increased output, employee retention, reduced absenteeism, increased employee

morale, and a better educated workforce. For this group, evaluations at Kirkpatrick's

Levels 2 – 4 may be most valuable. The third group, the employees / learners being sent to training programs, are concerned with personal issues such as gaining more demonstrable skills that may lead to better pay, quality of learning experiences, recognition for attending training and gaining new skills, self–esteem, feeling valued by the company, and being seen as a mentor to others. For this group, evaluations at Levels 1 and 2 may hold the most value (Mosher, n.d. a).

<div align="center">Increased Emphasis on ROI: Reasons and Examples</div>

There are several examples in the literature that highlight justifications for the increased emphasis on return on investment, especially where it concerns training. The following is an explanation of increased emphasis on return on investment in knowledge – based companies:

> Measuring the return on investment on a stock is easy enough: simply divide the amount it gained (or lost) by the price you paid. For CIBC senior executive Donna MacCandlish, however, calculating return on investment is a tad more daunting: as vice-president of financial – solutions support within the bank's wealth-management division, MacCandlish … leads a team of 50 people who design and deliver training programs for various professionals. "It's very difficult to put a value on your business when the assets are truly the people and what's in their heads," she says. That is causing knowledge-driven U.S. companies, along with a select few in Canada, to seek help. In a trend known by its catchphrase, return on investment, or ROI, accounting techniques and other quasi-scientific methods are fast being adapted to evaluate staff improvement. Inventing science-inspired metrics to improve training

evaluation has blossomed into an industry unto itself, complete with best-selling books, pricey certification courses (to teach trainers how to train properly), and in Canada, a new entity called the Canadian ROI Network, which launched this spring. There is even an annointed champion of the movement, former-banker-turned-consultant Jack Phillips. A veritable Jack Welch of training, Phillips jets to speaking engagements and meetings with clients that include the CIA and Internal Revenue Service, Fed Ex, Lockheed Martin, Motorola and even Harley-Davidson (Staples, 2003, p. 123).

There are other examples in the literature concerning reasons for the increased emphasis on return on investment, especially in the area of training. Hubbard wrote concerning his experience with return on investment:

… we can look at diversity's impact on organizations in terms of return-on-investment and can calculate it. It's a huge opportunity. It's not about counting heads; it's about making heads count. The Diversity Measurement and Productivity Institute, a division of Hubbard & Hubbard, helps companies decide what to measure and how to measure it. Seven other divisions offer services from customized training and development to management research and technologies, and such products as Hubbard's and others' books, as well as MetricLink, a proprietary productivity-measurement software with more than 300 user organizations (Hubbard, 2003, p. 42).

Return on investment is even being given some consideration by the world of professional sports:

By landing Alex Rodriguez, the New York Yankees have other teams

griping that the sport's competitive balance is gone. Impose a cap on

player's salaries, demanded Boston Red Sox owner John Henry. How

ironic that Henry, who made his fortune on Wall Street, hasn't grasped

the genius of Yank owner George Steinbrenner. With the signing of A-

Rod for $112 million over seven years, the Yank's star-studded lineup will

cost Steinbrenner a projected $185 million this season. But in baseball,

it's not how much money your spend—but who you spend it on—that

counts. Steinbrenner's investment in players such as Derek Jeter and

Bernie Williams has enabled his team to go to the World Series six times

since 1996 and capture four championships. Other rich teams that have

spent heavily on players since 1996, such as the Los Angeles Dodgers,

New York Mets and Boston Red Sox, have had scant postseason success.

We devised a return-on-investment ratio for teams that had payrolls of

$100 million or more in 2002: Take the five-year percent change in team

value and divide it by the five-year percent change in player expenses.

Upshot: The Yankee's ROI ratio of 1.3 is highest among the big payroll

teams and almost twice as high as that of the Red Sox. The Yankees are

hauling in higher ticket, sponsorship and television revenue. George

Steinbrenner, value investor (Ozanian, 2004, p. 56).

Pescuric & Byham (1996) offered the following example of reasons for the value

of ROI:

Today's organization is flatter and less hierarchical. Employees take on

more responsibilities as their organizations try to do more with less. As a

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result, people have more demands on their time. The "do more with less" credo applies to training as well as other parts of the organization. With time, money, and resources preciously guarded, it's no wonder that organizations demand solutions that offer return on the organization's investment as well as that of the learners' (p. 25).

This discussion of the efforts of one East coast banking corporation to make return on investment part of its daily operations provided yet another perspective:

At first glance it sounded like a pricey proposition: First Union Corp. training execs wanted a company to build 48 new training centers. Bricks, mortar, construction labor, new computers: it could seem like quite a blow to the bottom line. But the Charlotte, N.C. bank built all 48 centers, constructing them up and down the East Coast. Despite the expense, today First Union saves more than $700 training every one of its 10,000 tellers. How? It made the gains by replacing two-week stand-up training courses with 20- to 24- hour CBT-based courses. Multimedia can save you money over the long haul. That's a fact, plain and simple. And what's more, you can even calculate the hard dollar return on investment. You keep the bean counter happy and the students learning (Hall, 1997, p. 1).

Another example of increased ROI emphasis related it to worker competency:

In the new reality, an organization needs a well-developed competency plan or roadmap for it's (sic) workforce from the management team to shop floor operations. It is obvious that training and education will need to be extended to all employees based on competency determined

roadmaps and business needs. Hence, identifying and developing a sound

framework that can measure returns on this investment become of

paramount importance. To help ensure a good return, organizational

training and education must be focused on it's (sic) needs and must result

in measurable changes in knowledge, skills, and abilities. The investment

must also result in measurable changes in knowledge, skills, and abilities.

The investment must also result in behavioral change, make a difference to

business results as well as meet the needs of the learner. At the end of the

day, it will be the learner ROI that is most valuable (Tian, 2001, p. 2).

<center>Intangibles of Return on Investment (ROI)</center>

While ROI tends to focus on tangible monetary benefits of training, its advocates

acknowledge there are also intangible training outcomes that must be considered. One of

the pioneers of return on investment, Jack Phillips, provided insight concerning the

intangibles of return on investment:

>Not all measures can or should be converted to monetary values. By
>
>design, some are captured and reported as intangible measures. Although
>
>they may not be perceived as valuable as the measures converted to
>
>monetary values, intangible measures are critical to the overall evaluation
>
>process. In some programs, such as interpersonal skills training, team
>
>development, leadership, communications training, and management
>
>development, the intangible or non-monetary benefits can be more
>
>important than monetary or tangible measures. Consequently, these
>
>measures should be monitored and reported as part of the overall
>
>evaluation. In practice, every training program, regardless of its nature,

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scope, and content, will have intangible measures associated with it. The challenge is to efficiently identify and report them (Phillips, 1997, p. 171).

Phillips (2002) also defined the nature of intangible benefits of training, stating that they could "include items such as: improved public image, increased job satisfaction, increased organizational commitment, enhanced technology leadership, reduced stress, improved teamwork, improved customer service; or reduced customer–response time" (pp. 75-76).

The literature offers other examples of the intangibles that companies enjoy as a result of the concept of return on investment. Hoffman (2002) wrote that "companies that implement online training systems for a "modest" five – or six – figure investment typically generate strong financial returns through cost reductions in areas such as travel, human resources overhead, regulatory compliance and customer support." There are other examples of intangibles in the literature, including Sorenson's (2002) example of the indirect cost of ineffective training:

> Irrespective of the real or perceived value of training, reducing costs will increase the ROI. Costs associated with training can be categorized as direct costs and indirect costs. Other certain opportunities may be lost without such training. Direct costs are the actual costs of conducting training, including the cost of acquiring or developing instructional materials, purchasing training aids and equipment, and paying for the training and trainee's time. Indirect costs are the costs that result from inadequate training or no training at all. Indirect costs include: higher operating costs associated with reduced efficiency, system repair and maintenance costs associated with equipment casualties and inadequate

preventive maintenance, additional labor costs and medical expenses

associated with lost time accidents and worker's compensation claims,

fines for noncompliance with regulatory agency requirements, personal

injury, property damage, and other liability lawsuits arising from system

malfunctions and poor IAQ (p. 34).

Cross (2001) talked about intangibles of return on investment, stating that, "One of the problems with measuring training's influence on worker productivity is that there are many areas of productivity that are intangible and difficult to quantify, such as ideas, abilities, experience, insight, motivation, and so forth" (pg. not available in online document). Another perspective on the intangibles of return on investment addressed soft benefits:

"I've yet to meet a CFO who will write down soft benefits – improved

customer satisfaction, increased worker productivity and improved market

competitiveness, for example – and use them in an ROI calculation," says

Jay Pieper, vice president for corporate development and treasury affairs

at Partners Healthcare System in Boston. "They're just too hard to

account for in financial terms." But that doesn't mean they aren't there

(Koch, 2002, p. 5).

Soft skills are particularly difficult to account for in ROI calculation. Setaro (1999) addressed this issue directly, asserting that employee soft skills such as learning to work cooperatively in groups, coming to work on time, interpersonal skills, etc. are almost impossible to place a dollar value on but are invaluable to a company's bottom line. Setaro did, however, suggest that soft skills can sometimes be valued by the decrease in employer turnover, which helps reduce the cost of training and increase the

company's continuity between departments. Other researchers have contended that many benefits of training that at first glance appear to be intangible can actually have a bottom – line impact that can be translated into dollar terms (L.J. Ausburn, personal communication, October 15, 2003; Phillips, 2002). On the other hand, Kurtus (2001) was critical of soft skills training and its so–called intangible benefits. According to Kurtus:

> Very often there are no specific or measurable goals to achieve for a training session. This is especially true in many of the "soft skills" taught to managers. It is very difficult to measure the results of a manager style training seminar. In fact, the goal for such training might be something like: "To be a better manager," whatever that means. If there is no way to measure the effectiveness of the training, the company might be better off simply giving the people the money to go on a vacation (p. 3).

ROI can be found in such areas as energy management and power plant operations. Blankenship (2004) offers up an essay discussing the use of "trace heating," which is the use of heated cable to help keep pipes unfrozen during times of extreme weather. The payback periods achieved were 23 weeks for the power matching controller and 19 weeks for the proportional controller system. Translated to U.S. values, that equates to annual energy savings of $8,500.00 per mile of "trace heating" cable.

Barriers to ROI

While ROI can be highly beneficial and has been widely used for training assessment in industry, there are several barriers to its implementation. The literature has identified the following barriers to ROI:

- Costs and time,
- Fear and misunderstanding,

- Inadequate data and measuring systems, and

- Lack of ROI process skills.

<u>Costs and Time</u>

Phillips (1997) acknowledged early in this development of the ROI process that it adds additional costs and time to the evaluation of training programs, and "this barrier alone stops many ROI implementations early in the process" (p. 13). Adelgais (2001) agreed, pointing out that it takes more time and money to calculate ROI than is required in other forms of evaluation. The additional costs of ROI have been estimated at 3-5 percent of a company's total training and performance improvement budget (Phillips, 1997; P. Phillips, 2002). Mosher (n.d. b) also acknowledged the costs of ROI, pointing out that:

> Calculating true ROI in learning takes an investment in time and money. It's a difficult and involved process with many abstract issues and processes. It's not as simple as subtracting two numbers and seeing if you get a negative or a positive (p. 1).

Adelgais (2001) referred to another source of dollar and time expenditures required for ROI and indicated the need for establishing clear timelines for its completion:

> Staff must be trained to calculate and/or interpret the ROI of a program. It is a very intensive strategy to implement and staff can lose steam rather quickly if there are no specific deadlines in place for them (p. 3).

While acknowledging that added evaluation time and costs can be a barrier to ROI implementation, some experts have presented rebuttal arguments. Phillips (2002) argued that "…the added amount should not be excessive" and that "the additional

investment in ROI should be offset by the results achieved from implementation (e.g. the elimination or prevention of unproductive or unprofitable programs)" (p. 95). Ellis (2004) related ROI costs to timing and selection of programs selected for evaluation. He suggested that it is necessary to decide at what point to assess a program because "… measuring constantly can be very costly; measuring strategically is definitely much better and much more effective" (pp. 1 -2). Ellis also indicated that an essential part of controlling ROI costs by strategic measurement was the careful selection of programs to assess, asking "What programs should be evaluated for ROI? What programs shouldn't? Where do you draw the line?" (p. 2). Mosher (n.d. b) also supported ROI, stating that despite its costs and complexities, "…the outcome can be well worth the 'I' in ROI (INVESTMENT!) (p. 2).

Fear and Misunderstanding

Another major barrier to the application of ROI is a fear that it will be used in a punitive fashion. Phillips (1997) indicated that there may be a concern about the consequence of negative ROI. Adelgais (2001) supported this viewpoint, stating that, "There is a fear of a negative ROI. Many do not want it proven that a training program is actually bad for a company" (p. 3).

In addition to fear of punitive uses of ROI, many managers may have another concern about its use in evaluation: They may simply not want to look at the "real" numbers, fearing that ROI will negate their preference for managing by internal feelings. Cross (2001) claimed his experience "… has shown that most senior executives have more faith in gut feeling than in numbers" (p. 6). Mosher (n.d. b) commented on this issue specifically as it applies to evaluating training, stating that, "ROI has always

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bothered me because few organizations truly want to measure it at a true learning outcome level" (p.1).

Another fear of ROI often expressed by trainers and training departments is that it will be used to justify selection of the cheapest training programs and techniques, basing choices on costs rather than quality. The Sterling Institute (1998 – 2003) cautioned against this misuse of ROI and indicated it missed the real point of this method of assessment:

> We believe that the real purpose of calculating a ROI on training programs is to demonstrate that participants are able to effect organizational performance as a result of what they learn in the classroom. ROI should not, in our judgment, be used simply as a way to demonstrate that one training program is less expensive than another and, therefore, worth its investment. Cost comparisons of training programs and training technologies are vital parts of the buying process that training departments should be expected to perform. The types of cost analyses represent training's due diligence (p. 1).

<u>Inadequate Data and Measuring System</u>

Successful use of ROI to assess the financial impact and benefits of training programs is a sophisticated process that requires the development and maintenance of an extensive measurement system and a large data base of costing and other related information. Considerable time and effort are necessary to maintain such a system, and it is simply lacking in many organizational institutions. This creates a substantial barrier to successful implementation of ROI, described by Rummler and Brache (1995) as follows:

Most managers do not have a valid, integrated, manageable, set of measures. Those who do have appropriate and comprehensive measures usually fail to take the next step, which is to use them as the basis for a measurement system, which includes mechanisms for gathering actual performance information, comparing it to the goals, and communicating that information to those who can use it. Those who do have such a measurement system often don't use it appropriately (p. 156).

<u>Lack of ROI Process Skills</u>

All proponents of ROI acknowledge in their writings its complexity and its dependence on a well–refined set of skills for successful implementation. Several specific aspects of the ROI skills barrier have been addressed in the literature. One important skill requirement for successful ROI is knowing how to select suitable training programs for ROI analysis. The first requirement for a training program to be analyzed for ROI, as consistently pointed out in the literature, is that it should be a "big" program. ROI is an expensive and time-consuming process and should be saved for large–scale programs in terms of costs, number of participants, longevity, and visibility or PR value to the organization (Phillips, 1997; Phillips, 2002). Second, a training program must be in effect for some time before its ROI can be calculated; new programs are not suitable for accurate ROI analysis (Adelgais, 2001). A third requirement of programs selected for ROI is that their benefits must not be largely intangible or "soft." For example, Kurtus (2001) claimed that "soft skills" training for managers can be very difficult to assess in terms of financial benefits. As another example of a program not well suited for ROI analysis, due to its intangible benefits, Gordon and Richardson (2004) discussed information security:

ROI can't be applied perfectly to information security because often

the return on information security purchases and deployments is

intangible. Sure, companies invest in some solutions that offer benefits

beyond security – faster network throughout in a new router that supports

VPNs, for example – and they can calculate the ROI of these indirect

benefits. But security requires factoring in the expectations of loss.

Statistically, some losses are expensive but unlikely to occur in any given

year, for instance, so the expectation of loss over a period of years has to

include years in which there is no loss. Furthermore, the accounting –

based notion of ROI doesn't take into account that great chestnut of

economic theory, the "time value" of money (p. 68).

Another skill that is critical for successful ROI, and yet often lacking in

companies that attempt its implantation, is knowing how to translate benefits of improved

employee performance into dollar terms. This is a complex process that requires both

knowledge of translation procedural options and practice in carrying them out. The

dollar conversion issue is frequently mentioned in the literature as a skill barrier in ROI

(Phillips, 1994, 1996a, 1997; Phillips, 2002; Setaro, 1999). A good step–by–step

example of the conversion of performance data to monetary terms was provided by

Phillips in an article on ROI calculations:

Step 1: Focus on a single unit. For hard data, identify a particular

unit of improvement in output (such as products, services, and

sales), quality (often measured in terms of errors, rework, and

product defects or rejects), or time (to complete a project or

respond to a customer order). A single unit of soft data can be one

employee grievance, one case of employee turnover, or a one-point

change in the customer – service index.

Step 2: Determine a value for each unit. Place a value on the

unit identified in step 1. That's easy for measures of production,

quality, time, and cost. Most organizations record the value of one

unit of production or the cost of a product defect. But the cost of

one employee absence, for example, is difficult to pinpoint.

Step 3: Calculate the change in performance. Determine the

performance change after factoring out other potential influences

on the training results. This change is the output performance,

measured as hard or soft data, that is directly attributable to

training.

Step 4: Obtain an annual amount. The industry standard for an

annual – performance change is equal to the total change in

performance data during one year. Actual benefits may vary over

the course of a year or extend past one year.

Step 5: Determine the annual value. The annual value of

improvement equals the annual performance change, multiplied by

the unit value. Compare the product of this equation to the cost of

the program, using this formula: ROI = net annual value of

improvement – program cost (Phillips, 1996a, p. 22).

This calculation procedure presented by Phillips raises another important

skill for ROI implementation: isolation of the effects of training. Adelgais (2001)

stated emphatically that "It is difficult to isolate the effects of specific training or

programs and provide accurate estimates" (p. 2), yet Phillips indicated it is

essential to isolate the effects of training from other factors that can affect

business results if ROI is to be fair and accurate (Phillips, 1996b). The

importance of isolating the effects of training is obvious when one considers that

improvements in job performance are usually only partially due to training

programs. Other variables such as trainees' ages and work experience, seasonal

work patterns, economic changes, shifts in management, equipment breakdowns,

and customer attitudes, etc. can influence performance data and make it difficult

to determine the actual effect of specific training on ROI results (Shelton &

Alliger, 1993). The method frequently recommended for isolating training effects

from other factors is use of control groups (Brown, 2001; Phillips, 1996b;

Phillips, 2002).

     Phillips described the use of control groups in ROI as follows:

          A highly credible approach for isolating the effect of training is the

use of control groups in an experimental training design. The

experimental group receives training; the control group does not.

Participants in both groups should be similar demographically,

selected at random, and subjected to the same environmental

influences. It isn't necessary to take pre-program measurements of

the two groups. Rather, measurements taken after training show

the difference in performance between the two groups that can be

attributed directly to training. For example, Federal Express gave

20 new employees training in driving company vans. Their post-

training performance was compared with a control group of 20

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new employees who hadn't received the special training. The two

groups' performance was tracked for 90 days in 10 performance

categories, including accidents, injuries, and errors. Experts from

engineering, finance, and other groups assigned dollar values to the

performance categories. The ultimate outcome was that the

training showed a 24 percent return on investment (Phillips, 1996b,

p. 30).

Other additional ways to isolate training's effect on performance include

trend–line analysis, forecasting, participant estimation, supervisor estimation,

management estimation, customer input, expert estimation, and subordinate input

(Brown, 2001; Phillips, 1996b; Shelton & Alliger, 1993).

A final issue related to ROI skills is an appropriate innovative attitude by

both management and employees. The successful champion of ROI must be

willing to learn, change, and try new things, using ROI as a process improvement

tool. Without this attitude and approach, it may be best not to try (Phillips, 2002).

Without this attitude, an organization may fail to successfully implement ROI

even if it has the technical skills to do so.

<center>ROI Procedures and Calculations</center>

ROI Procedures

Prior to performing ROI assessment of a training program, it was hoped

that the program to be assessed was funded because it was well aligned with the

organization's strategic goals. In presenting an eight–step process for aligning

training initiatives with organizational goals, Bahlis (2004) explained:

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Unless you are running training as a revenue generating business,

your budget is viewed as an expense – which is being continually

scrutinized, and the demand for training most likely exceeds your

capacity. As a result, you need to focus your resources on the most

important initiatives to maximize your training investment and

demonstrate its value…how do you decide which programs to

fund? ...it all boils down to how much time, money, and resources

are required to run various programs and the benefits generated in

return. To identify the benefits, clear links should be established

between training activities and organizational goals …as a result,

the success and importance of training is not measured by the skills

and competencies that are being developed, but by the impact of

the newly acquired skills and competencies on "performance"

(p. 1).

Before ROI is undertaken, it is also necessary to select an appropriate program for

complex and rigorous analysis. Experts have pointed out that selected programs should

be "big" in terms of costs and scope (Phillips, 1997), in existence for sometime

(Adelgais, 2001), and able to provide "hard" data benefits (Kurtus, 2001).

Once an appropriate training program is selected for ROI assessment,

implementation can be undertaken by following established procedures and making

required calculations. Phillips provided a six–step basic process for performing ROI:

1. Collect evaluation data on a training program at Kirkpatrick's Level 4
   (Results).

2. Ask the question, "Did on–the–job application produce measurable results?"

3. Isolate the effects of training from other factors that may have contributed to the results.

4. Convert the results to monetary benefits.

5. Total the costs of training.

6. Compare the monetary benefits with the costs. (Phillips, 1996a).

Brown listed a similar basic five steps:

1. Obtain data to demonstrate the changes in behavior, e.g. that gathered through surveys, questionnaires, on–the–job observations, post–program interviews, focus groups, and performance models.

2. Isolate the effect of training, e.g. through the use of control groups, trends lines, and forecasting models.

3. Convert the data to monetary value by focusing on a unit of measure, determining a value for that unit, calculating the change in performance data, determining the annual amount for the change, and calculating the total value of the improvement.

4. Tabulate the program costs: This is the value of the cost of taking the people away from their jobs for training, including salary and benefits.

5. Calculate the return on investment by dividing the net benefits by the costs times 100 percent (Brown, 2001).

The basic ROI process has the important advantage of assessing training in terms that are credible and important to an organization's management. Davidore and Schroeder explained this as follows:

To show a credible return on investment for training, describe results in the context of the financial and performance models that the company's decision makers already use to measure business results. Three key business objectives – quality, timeliness, and operational costs – are often important to senior and line managers, are usually achievable with good training, and are generally possible to monitor (1992, p. 71).

ROI Calculations Formula

The generally accepted formula for calculating ROI is:

ROI = (Total benefits - costs/costs) x 100

or

Net Benefits / Costs x 100

ROI is expressed as a percent that represents the proportion of training cost that is returned to the organization in financial benefits. Davidore and Schroeder explained the general formula as follows:

One way to calculate a return on the training investment is to divide operational savings or revenue increases resulting from training by the training program costs. Then multiply the results by 100 (1992, p. 71).

Another general interpretation of the ROI formula was offered by Brauchle and Schmidt:

To get ROI, the training costs are subtracted from the total benefits to get the net benefits, and then the net benefits are divided by the costs. The formula for this is ROI (%) = net program benefits / program costs x 100 (2004, p. 82).

Several good examples of ROI calculations are provided in the literature. Davidore and Schroeder offered the following:

> For example, suppose half the sales force is randomly selected for training that costs $100,000 to develop and $100,000 to deliver. Six months after training, if the trained salespeople sell $50,000 more than the people who received no training, the ROI is 25%. If the trained sales force sells $50,000 more in the next six months as well, the ROI is 50 percent (1992, p. 71).

Another example was presented by Phillips:

> Suppose a training program produces benefits of $321,600 with a cost of $38,233. …the net benefits were $321,600 - $38,233 = $283,367. ROI is $283,367 ÷ $38,233 = 7.41. Using the ROI formula, for every $1 invested in the program, there was a return on investment of $7.41 in net benefits (Phillips, 1996c, p. 81).

Another ROI calculation recommended by several experts is called "payback period." Brauchle and Schmidt (2004) asserted that, "This technique usually makes the assumption that the cash proceeds generated by a training intervention are constant over time, and it calculates the time period needed to pay back the original investment" (p. 82).

Phillips (1996c) gave the formula for payback period as:

Payback Period = Total Investment / Net Annual Savings

Brauchle and Schmidt (2004) explained the calculation for the ROI example presented above:

…the total investment is $38,233, and the net benefits are $321,600. If there is no time period specified, it can be safely assumed that the net benefits are for a period of one year, because budgeting is usually done on an annual basis. Using these figures with the formula produces an answer of .1188837 years or 43 days. In this instance, the original training investment was paid back within 43 days (p. 82).

Barnard (2002) approached payback period slightly differently. According to Barnard:

Another way of looking at ROI is to calculate how many months it will take before the benefits of the training match the costs and the training pays for itself. This is called the payback period.

Payback period = costs / monthly benefits

Payback period is a powerful measure. If the figure is relatively low, then management should be that much more encouraged to make the training investment. As a measure, it also has the advantage of not requiring an arbitrary benefit period to be specified (p. 1).

<u>What to Include in Costs and Benefits in ROI Calculation</u>

Several experts have offered guidance in establishing what items to include in costs and benefits in the ROI formula. Shepherd (1999) contended that costs should include training design and development, promotion, administration, faculty, materials, facilities, and student costs. He claimed that costs related to student participation in training were probably the most significant costs, but

should only be considered if the training takes place when the student / worker would otherwise be on the job. Specifically, Shepherd explained:

> It is only necessary to charge a student's cost against the program if training is undertaken in time that would otherwise be productive and paid for, so you only need to estimate the amount of travel and training that is undertaken in productive work time, i.e. not in slack time, breaks or outside work hours. When an employee goes through a training program in work time, the organization is not only having to pay that person's payroll costs, they are (sic) also losing the opportunity for that person to add value to the organization. When a salesperson is in a course, they are (sic) not bringing in new business. Similarly, a production line worker is not creating products, a researcher is not developing new ideas and an accountant is not finding ways to save money. If an employee can be easily replaced while they are (sic) undergoing training, then there is no lost opportunity - the cost is simply the employee's payroll cost. In many cases, however, it is simply not practical to obtain a suitable replacement, so the output that the employee would have generated in the time that they are (sic) receiving will be lost. In this case, the true cost of employee being trained is the lost opportunity – the 'opportunity cost.' The calculation of opportunity costs goes beyond the scope of this article, but, suffice to say, they are greater than an employee's payroll costs and need to be considered in any serious evaluation of costs (1999, p. 4).

Probably the most extensive and complete identification of costs that should be included in an ROI analysis of a training program was provided by Phillips (2002). Her sample "fully loaded cost sheets" are highly useful in developing ROI costing calculations.

Benefits expressed in monetary terms are the other critical component of ROI calculation. Shepherd (1999) indicated that financial items claimed as benefits should include those accruing from improved performance of trainees, labor savings as a result of training, increased productivity as a result of training, and money not lost as a result of not training. In other words, the time employees spent in training was not lost time.

Value and Benefits of ROI

"We recognize that using ROI to analyze the effectiveness of training programs is becoming both a political and operational imperative in an age when staff budgets are increasingly scrutinized and every line item has to be justified" (Sterling Institute, 1998 – 2003, pg. not available in online document). Training budgets have become a major expense for businesses and for educational programs. In the corporate world, it is recognized that industries that spend an above average amount on training have a return on investment of 45 percent more than the annual S & P 500 index and that sound investment in training and education means more money for everyone (Bassi & McMurrer, 2001). This gives some credence to the trainers' claim that "…training doesn't cost…it pays, and HRD is an investment, not an expense" (Parry, 1996, p. 72). However, in reality in today's climate of increasing fiscal accountability, training budgets are "being continually scrutinized" (Bahlis, 2004, p. 1) and, in both education and industry, one of the first areas to receive budget cuts is training (Shepherd, 1999). In this climate, the benefits of ROI as a tool for measuring and reporting the effects of training

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programs is clear: It "expresses the results of training programs in terms of dollars, a metric that is of common interest to managers and decision makers" (Brauchle & Schmidt, 2004, p. 91), and it can help trainers resist cuts in their budgets (Shepherd, 1999). Dollar measures of training impacts have an enormous appeal to managers, and failure to use such measures can disadvantage trainers and educators when they must deal with their "more financially literate colleagues" (Brauchle & Schmidt, 2004, p. 71).

Phillips claimed that four distinct and important benefits come from the implementation of evaluation of training programs within an organization:

1. Measurement of the contribution a program made to the organization and determination if it was a good investment.

2. Determination of which programs contribute most to the organization and establishment of priorities for high–impact programs.

3. Placing a focus on the results of all programs.

4. Assistance in convincing management that training or education is a sound investment and not just an expense (Phillips, 1997).

Many organizations now believe that training, like other aspects of their operation, should be evaluated to validate it as a profitable business tool with the ability to improve its performance, profit margin and competitive edge (Shepherd, 1999). With its unique ability to tie training outcomes to an organization's bottom line, properly performed ROI can provide substantive information upon which to base training support (Brown, 2001). This represents a solid value for trainees and educators.

Customer Satisfaction

In a highly competitive business climate, the issue of customer satisfaction and its impact on an organization's bottom line has become an important element in both operations and assessment of corporate performance in a wide variety of industries. Lang (2004) described the implementation of customer satisfaction efforts at Ford Motor Company, where customer satisfaction was related to product quality:

> Unfortunately, while Ford vehicles were progressing in every other aspect, automatic transmissions were the Achilles' heel of the vehicle. According to Ken Williams, the manufacturing director for Automatic Transmissions, …"We had a horrible reputation – no durability." [The company] developed a three-year plan to turn around the automatic transmission line and achieve a 6 to 8 percent improvement rating in customer satisfaction (pp. 72-73).

Macarthur (2004) described the importance of customer satisfaction to the fast food industry, where perceptions of product quality and customer service are critical to survival in a competitive business:

> Among the four burger chains, Burger King has declined to its lowest rating in overall quality perceptions over the past year, while the other three have improved customer satisfaction scores, according to data from Sandelman & Associates. Compared to the fourth quarter of 2002, Burger King's overall quality rating fell four points, according to QuickTrack data that asks consumers who

have visited the chain within three months to rate their experience

based on food, service, atmosphere and price. By contrast,

McDonalds gained two points, Hardee's gained four points and

Wendy's improved by nine points (p. 76).

Purdum (2003) discussed the need to provide great customer service in

manufacturing. He asserted that indeed, manufacturing is no longer about making

things; it's about customer satisfaction, adaptation, anticipation and innovation,

and using every resource available to survive or be eaten if the global shift that is

taking place is ignored. Lundquist (2003) talked about IBM's misguided attempts

to impress the marketplace and at the same time not serve the need of its

customers. According to Lindquist, IBM bragged that 53 percent of its profits

came from consulting services. This proved to be a constant source of irritation to

customers, who wanted IBM to give more energy to serving their needs, and

made their feelings felt on the company's profits.

O'Brien and Manross (2002) addressed the difference between customer

satisfaction and the idea of customer loyalty. They indicated the obvious, in that,

you must strive for customer satisfaction. More important in their discussions,

however, was the idea that a loyal customer will exhibit those behaviors that

support the very existence of an organization. Holloway (2002) commented on

Air Canada and its deplorable record of customer satisfaction, which would

eventually impact customer loyalty and, thus, corporate profitability and survival.

According to Holloway:

Canadians love to hate Air Canada, and so do Canadian businesses.

With an overall satisfaction rating of only 16%, Air Canada was

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the lowest-ranked of the 19 companies in our survey. To put that

figure into perspective, three times as many people were happier

dealing with the taxman than with the beleaguered airline. But the

news gets even worse for Air Canada. WestJet Airlines, the only

real competitor for business traffic in Canada, earned an approval

rating of 89%, the highest of any company in the survey (p. 78).

Because customer satisfaction is crucial to the survival of any organization

and the ROI of the services it provides, it was included in the assessment of the

Existing Industry Training Program in this dissertation study.

Focus Groups

The focus group is a well recognized tool of qualitative research. It is also a

common technique for probing participant feelings and opinions in mixed–model

research designs. Greenbaum (1998) supported the effectiveness of focus groups for a

variety of purposes:

Qualitative research encompasses several different techniques, each of

which has inherent strengths and weaknesses. Focus groups are one

important technique among them. When used appropriately, focus

groups can be extremely effective in generating meaningful information

about consumer attitudes toward a variety of different topics (p. 15).

Krueger (1988) also supported the usefulness of focus groups and claimed they

were superior to other methods frequently used in education for obtaining information for

decision–making.

Focus groups have been a mainstay in private sector marketing research.

More recently, public sector organizations are beginning to discover the

potential of this procedure. Educational and nonprofit organizations have

traditionally used face-to-face interviews and questionnaires to get

information. Unfortunately, these popular techniques are sometimes

inadequate in meeting information needs of decision makers. The focus

group is unique from these procedures; it allows for group interaction and

greater insight into why certain opinions are held. Focus groups can

improve the planning and design of new programs, provide means of

evaluating existing programs, and produce insights for developing

marketing strategies (p.15).

Focus groups are well established as a qualitative data–gathering tool, and the

definition of the technique is straightforward:

A focus group interview is an interview with a small group (usually four

to eight people) who are asked to think about a series of questions asked

by the interviewer. The participants are seated together in a group and get

to hear one another's responses to the questions. Often they offer

additional comments beyond what they originally had to say once they

hear the other responses. They may agree or disagree; consensus is

neither necessary or desired. The object is to get at what people really

think about an issue or issues in a social context where participants can

hear the views of others and consider their own views accordingly

(Frankel & Wallen, 2003, p. 462).

Some researchers have claimed that focus groups should be used primarily for

exploratory purposes. However, Morgan (1988) refuted this position, and also posited

several uses for focus groups when combined with other forms of data collection:

Asserting that focus groups should not be relegated to a preliminary or

exploratory role must not … blind us to the value of linking focus

groups with other forms of data collection, both qualitative and

quantitative. In this vein, focus groups are useful for

1.   orienting oneself to a new field;

2.   generating hypotheses based on informants' insights;

3.   evaluating different research sites or study populations;

4.   developing interview schedules and questionnaires;

5.   getting participants' interpretations of results from earlier

studies (p. 11).

In this dissertation study, the researcher used a focus group for Morgan's purpose

number 5. The study focus group was used as a sounding board to ascertain whether or

not the findings of the study seemed to be accurate in the eyes of a group of stakeholders

from the Business and Industry Services Directors and CareerTech professionals who are

involved on a daily basis with the Existing Industry program. This procedure was similar

in concept and purpose to that used by Linkenbach (1995) in a study of alcohol servers in

Montana. This procedure used a focus group to get stakeholders' buy-in and ownership

of the study's findings and recommendations.

Morgan & Krueger (1993) suggested that focus groups should be considered

when the researcher wants to learn more about the degree of consensus that may be

present on a given topic:

Often a major part of our research goal is to learn more about the range of

opinions or experiences that people have. Focus groups have a strong

advantage here because the interaction in the group can provide an explicit

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basis for exploring this issue. Of course, the degree of consensus in the group can only become open to observation if the researchers make it clear that they want to hear a range of opinions, so one should never mistake the failure to disagree for the actual presence of consensus (p. 17).

Schensul, LeCompte, Nastasi and Borgatti (1999) also discussed the purposes and uses of focus groups:

1.) Provide access to a rich source of data on social norms, behaviors, opinions and attitudes, and the structural features of a group or community and cultural patterns. These can be used in conjunction with other sources of information to provide a well-rounded picture of the population, or to develop cultural intervention materials for use in behavioral change programs.

2.) Reveal the full range of variation in possible responses to questions for use in survey construction.

3.) Demonstrate styles of dialogue and debate among people who share or differ in important ways.

4.) Provide some evidence of likely quantitative variation in the target population in key independent and dependent variable domains.

5.) Provide the basis for generating important hypotheses that can be tested both qualitatively – through other focused group interviews - and quantitatively – in survey research designs based on focus group data (p. 111).

One advantage of focus groups is their ability to provide information on the range of opinions and feelings held by participants. On the subject of response range in focus groups, Merton, Fiske and Kendall (1990) provided the following analysis:

> The first criterion of an effective focused interview to be considered in detail is that of range: the extent of relevant data provided by the interview. Without implying any strict measure of range, we consider it adequate if the interview yields substantial data which (1) exemplify types of responses to the situation which were anticipated on the basis of a prior analysis of the situation; (2) suggest types of inter-relations between responses to the situation which were obtained in some other way (for example, through questionnaires or observation); (3) bear upon aspects, which were not anticipated on the basis of prior analysis. The greater the coverage of these three types of data, the more nearly the criterion of range is satisfied (p. 41).

In this study, the researcher selected members of the focus group who had a stake in the outcome of the process and who the researcher felt would be open and honest in providing range in the assessment of the findings of the study. If the focus group findings were not open and honest and did not represent the present "snapshot" of the Existing Industry program, then they would have been of no value to the researcher or to CareerTech as a system.

Another important aspect of focus groups is the domain of information represented by and in the group. Fern (2001) discussed this domain of shared and unshared information within a focus group:

> Assume that for any focus group purpose, there is a domain of relevant

information distributed across group members. This domain is the sum of all the information held by individual group members. Group members share part of this information, and the other part is not shared. The shared information is common or everyday knowledge that results from the similar backgrounds and life experiences of the individuals making up the group. The unshared part of the information is that which one individual knows but others do not. This information is unique because no two individuals have exactly the same life experiences. As a result, the domain of information available to the group and its moderator is unequally distributed across group members, depending on the degree to which members share similar backgrounds and experiences. Each group member possesses a different subset of the total available information (p. 114).

Focus groups are subject to many social interactions and constraints that can affect the participants' ability to open up and reveal their thoughts and feelings. Goebert and Rosenthal (2002) discussed this issue and the role of the focus group moderator in controlling the group's interactions and keeping them on target:

When you're in a group, all of your little social antennae go up. As a panelist, you're responding to the fact that the man next to you has a tiny stain on his tie; the one to the right has crossed eyes; and the panelist across from you is beautiful, and you're captivated and jealous at the same time. You're struggling to make ends meet, and the woman over there has told you she's putting in a swimming pool and just got back from a vacation in Bermuda. The moderator has to get rid of all this extraneous

stuff and help people focus on her client's area of interest without letting them realize that's what they're doing (p. 35).

The researcher understood in this study the concept of shared and unshared information. The researcher also understood the importance of trying to get the focus group "focused" on the subject at hand. Taking the above factors and applying them to the larger context here concerning the use of focus groups for this particular study, the researcher found there was a clarity of purpose here as it pertained to the use of focus groups. The researcher was striving to insure that the findings of the study were accurate and really did make sense to those who live the experience on a daily basis. Individuals were picked to be part of the focus group because of the fact that they worked as part of the environment of the Existing Industry program. The researcher had a large grouping of resources available to help perform the needed steps to bring this research project to fruition, and he felt comfortable that these resources were all willing to help see this project through because of a sense of urgency to see just what the results of this study would be. The researcher used appropriate participants not only for the focus group in particular but for the large study overall. Useful data could not be gathered without the use of appropriate participants.

In analyzing how a good focus group meeting should be conducted, Krueger (1993) offered a summary of the ten factors that go into making a quality focus group gathering:

The ten factors that directly influence quality in focus group interviews are (1) clarity of purpose, (2) appropriate environment, (3) sufficient resources, (4) appropriate participants, (5) skillful moderator, (6) effective questions, (7) careful data handling, (8) systematic and verifiable analysis,

(9) appropriate presentation, and (10) honor the participant, client, and method. Quality in each of these areas may be jeopardized. Not all threats to quality are equivalent. Some are minor, some are major, and others are situational. These situational factors depend on the experience level of the researcher, the environment, and the problem (p. 85).

The researcher attempted in this study to serve as a skillful moderator for the focus group process and keep, as much as possible, human bias from influencing the process. Careful detail was given to the development of questions used with the focus group. This was done based on guidelines offered by Krueger (1998) concerning the development of questions to be used with a focus group:

The first principal is to ask questions in a conversational manner. Because the focus group is a social experience, conversational questions are essential to create and maintain an informal environment. But what makes one question conversational and another awkward often depends on the situation.

The wording of the questions should be direct, forthright, comfortable, and simple. Are the questions easy to ask, or do you stumble over words? It is critical that the language is appropriate for the intended audience. Furthermore, the meaning of the question must be clearly conveyed orally. Some questions are great when written but are confusing or stilted when asked orally (pp. 3-4).

Summary

Current literature clearly shows that return on investment is viewed as critical to businesses in general. One can also assume it is critical to Oklahoma

businesses. The literature reviewed here presented evidence of a rising emphasis

on return on investment, a look at the intangibles that must be considered as well

as barriers to return on investment. It also presented the mechanics of measuring

return on investment. This literature review also provided information concerning

customer satisfaction and the use of focus groups as a qualitative research tool

which helped shape the study's procedures.

Concerning ROI, the literature reinforced the researcher's positive view of

this assessment tool and led to an agreement with the view of Jack Phillips:

> While there is almost universal agreement that more attention is
>
> needed on ROI, it is promising to note that the number of
>
> successful examples of ROI calculation is increasing. The process
>
> is not difficult. The approaches, strategies, and techniques are not
>
> overly complex and can be useful in a variety of settings. The
>
> combined and persistent efforts of practitioners and researchers
>
> will continue to refine the techniques and create successful
>
> applications (Phillips, 1997, p. 23).

CHAPTER III

RESEARCH METHODOLOGY

Purpose of the Study

The purpose of this study was to describe the return on investment (ROI), the economic impact, and the customer satisfaction with training completed (for Oklahoma businesses and individual Oklahomans) under the Existing Industry Training program of the CareerTech technology centers. Companies that invest more heavily in workplace learning are generally more successful, more profitable and more highly valued on Wall Street (Densford, 1999). This study examined the effects of investment in workplace learning in Oklahoma by describing and making public return on investment, economic impact, and customer satisfaction data relating to training completed for business and industry clientele and full-time program completers at Oklahoma CareerTech technology centers.

Specifically, this study sought to:

1. Identify and measure the economic impact and return on investment (ROI) of training completed within the context of the Existing Industry Training program by Oklahoma technology centers for Oklahoma businesses.

3. Describe the customer satisfaction of those served by the Existing Industry Training program provided by the Oklahoma technology center districts.

Research Questions

This study was guided by four research questions:

1. What is the economic impact and return on investment (ROI) of training completed within the context of the Existing Industry Training program by Oklahoma career technology centers for selected Oklahoma businesses?

2. What is the general level of customer satisfaction with training conducted in the context of the Existing Industry Training program by Oklahoma career technology centers for selected Oklahoma businesses?

3. Are there differences in the level of customer satisfaction with training conducted in the context of the Existing Industry Training program by Oklahoma career technology centers for selected Oklahoma businesses based on size of community in which the business resides, number of individuals employed by the business, or annual gross sales of the business?

4. How do primary stakeholders (focus group) in the Existing Industry Training program perceive the findings of this study and potential impacts on the program?

Question number one was addressed by analyzing archived data collected from the Business and Industry Services (BIS) division of the Oklahoma Department of Career and Technology Education (ODCTE) in Stillwater, Oklahoma. This data was available for all 29 technology center school districts. The researcher also obtained additional necessary data from a questionnaire survey concerning economic impact and return on investment.

Questions two and three were addressed by developing and administering a customer satisfaction questionnaire that was mailed to all past users of training conducted under the Existing Industry Training program. Question four was addressed through a focus group procedure during which the researcher presented the study data to relevant stakeholders for analysis and discussion.

Design

This study was descriptive in nature. Fraenkel & Wallen defined descriptive studies as those "that describe a given state of affairs as fully and carefully as possible" (2003, p. 14). Hopkins defined a descriptive study as one within which "…no attempt is made to change behavior or conditions--you measure things as they are" (2000, p. 1). Leedy and Ormrod defined descriptive research as that "type of research involving either identifying the characteristics of an observed phenomenon or exploring possible correlations among two or more phenomena. In every case, descriptive research examines a situation as it is" (2001, p. 191).

This study employed both quantitative and qualitative data gathered through archival data, a survey questionnaire and a focus group. This allows the study to be classified as mixed methods research, defined by Johnson and Onwuegbuzie as "…the class of research where the researcher mixes or combines quantitative and qualitative research techniques, methods, approaches, concepts or language into a single study" (2004, p. 17). The researcher wanted to ensure that all available pertinent data were included in the study and thought that that would be impossible without including both types of data in the study.

> Quantitative data are obtained when the variable being studied is measured along a scale that indicates how much of the variable is present. Quantitative data are reported in terms of scores. Higher scores indicate that more of the variable (such as weight, academic ability, self-esteem, or interest in mathematics) is present than do lower scores (Fraenkel & Wallen, 2003, p. 200).

By contrast, qualitative data can be gathered in a variety of ways and forms including:

> Words or pictures rather than numbers. The kinds of data collected in qualitative research include interview transcripts, field notes, photographs, audio recordings, videotapes, diaries, personal comments, memos, official records, textbook passages, and anything else that can convey the actual words or actions of people (Fraenkel & Wallen, 2003, p. 431).

The quantitative data gathered for this study included responses to survey questions that asked respondents to rate their levels of customer satisfaction with the Existing Industry Training program. The respondents were asked to rate this level of satisfaction on a Likert-type scale with the highest level of satisfaction being a "5" and the lowest level of satisfaction being a "1." Respondents were also asked to provide quantitative data concerning number of new jobs created, level of employee wages at time of training, and demographics. Some of the qualitative data for this study were collected through the use of open-ended questions which allowed the respondents to explain more fully their particular views and thoughts concerning customer satisfaction with the Existing Industry Training program. Other qualitative data came from a focus group of stakeholders in the Existing Industry Training program.

<center>Population and Sample</center>

When considering populations and samples, it is important to understand the definitions of each and the differences between the two. According to Frankel and Wallen, a "sample" in a research study refers to any group on which information is obtained. The larger group to which one hopes to apply the results is called the "population" (2003, p. 96).

<center>55</center>

A sample is a subset of the population. Sampling is "the process of selecting individuals in such a way that they represent the larger group. This larger group is the population, which is the "group of interest to the researcher, the group to which he or she would like the results to be generalizable" (Gay & Airasian, 2000, pp. 121-122).

In generalizing data from sample to population, the validity of the inference "… rests on the degree to which the subjects in the sample are representative of the people in the population" (Shavelson, 1996, p. 8). The population for this study consisted of all Oklahoma businesses (N=552) that had been involved in an Existing Industry Training program conducted by the Oklahoma Department of Career and Technology Education (ODCTE) since the inception of the program in 2000. It should be noted that some Oklahoma businesses received Existing Industry training on more than one occasion during this five year period. This training was conducted for these Oklahoma companies by 29 technology centers serving nearly all of Oklahoma's 77 counties from 54 different campuses. Table 1 lists Oklahoma businesses and the technology center with which they worked while conducting training within the confines of the Existing Industry Training program. The table lists those companies that made up the population in the study.

Table 1

Oklahoma Businesses that Participated in Existing Industry Training 2000 – 2004: Population of the study (N=552)

Technology Center	Business
Autry Technology Center (n=22) Enid Garber County	ADM Milling, Advance Foods, Advanced Fiberglass Services, Aircraft Structures Great Lakes Carbon, CadCam Business Solutions, CadCom Telesystems, Central Machine, Central National Bank Continental Resources, DynCorp, GEFCO

Groendyke, Hackney, Inc., Horizon Industries Pioneer Precision, KC Electric Koch Industries, Metals USA, Pump Star Rush Metals, Steco, Trinity Fitting Group

*0 members (0%) of the sample came from this portion of the population

---

Caddo – Kiowa Technology Center (n = 6)
Fort Cobb
Caddo County

Covenant Transport, Golden Peanut Great Plains Correctional, Hollytex Carpet Mills, Werner Enterprises, Western Farmers

*0 members (0%) of the sample came from this portion of the population

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Canadian Valley Technology Center

(n = 22)
Chickasha, El Reno
Grady, Canadian Counties

Aearo Company, Arvin/ Meritor, Baity Screw Machine, Brake Right, CMI, Cimarron Trailers, Delta Faucet, Desired Designs, Dexter Axle, Exiss, Gemini, Heritage Press, Hermetic Switch Incorporated, Micro Designs, Inc., Midwest Towers, Inc., Mustang, Industrial Gasket, Oklahoma Folding Carton, ProFab, Seagate Technology, Surface Mount Depot, Vaccuumschmeize

*5 members (8.47%) of the sample came from this portion of the population

---

Central Technology Center (n=12)
Drumright, Sapulpa
Creek County

A+ Construction & Welding, A-1 Machine Works, Atlantis Plastics, Bartlett Collins Glass, Bennett Steel, CRTS, Inc., Fabwell Corporation, Frankoma Pottery, ICES Corporation, Kwikset, SBIR Engineering Saint Gobain Glass

*2 members (3.39%) of the sample came from this portion of the population

---

Chisholm Trail Technology Center (n=4)
Lomega
Kingfisher County

Kingfisher Hospital, Hollytex Carpet Mills Pioneer Telephone, Watonga Hospital

*1 member (1.69%) of the sample came from this portion of the population

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Eastern Oklahoma County (n=3)
Technology Center
Choctaw
Oklahoma County

Excell Products, Inc., Farmers Insurance, Madewell & Madewell, Inc.

*0 members (0%) of the sample came from this portion of the population

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Francis Tuttle Technology Center (n=34) Oklahoma City Oklahoma County	Acker Industries, Autocraft Industries, Bridgestone Firestone, CMI, Climate Master, Chef's Requested Foods, DataModes, Daniluk, Eaton Corporation, GENCO, Governair, Hobby Lobby, IEC, International Environmental, ISO Consortium, Jet Services, Jetta Corp., Kim Ray, L&S Automotive Products, Lean Manufacturing, Little Giant Pump, Metal Container, PepeTools, Inc., Pro-Cert, Printing, Inc., Ralston Purina, Reynolds & Reynolds, Richardson Foods, SemaSys, Steel Fabricators, Taylor Valve, Trinity, Unit Parts, Xsequor

*0 members (0%) of the sample came from this portion of the population

Gordon Cooper Technology Center (n=21) Shawnee Pottowatomie County	American Correctional Industries, Artic Temp., Central Plastics, DISA Goff, Inc., Eaton Corporation, Enviro Systems, Exxon Mobile, Goodhope Machine, Higgins Aviation, Mobile Chemical, Oklahoma Waffles, Shawnee Fabricators, Shawnee Milling, TDGI, TDK, TS&H, Tinker, Train the Trainer SLC500, Upinor, Wood Group, Wolverine Tube

*4 members (6.78%) of the sample came from this portion of the population

Great Plains Technology Center (n=31) Lawton Commanche County	Advance Systems Technology, Advancia, Advance/Eagle/Titan, Assurant Group, Ayers Nursing Home, Bar-S Foods, C&C Distributors, Cosmetic Specialty Labs, Drewry Communications, Eagle AST, Eagle Controls, Eagle Systems, Frederick Hospital, Goodyear, Great Plains, ISIS, ITT, KSWO, Lawton Constitution, Memorial Hospital, Metzeier Automotive, Pippin Bros, Inc., Quality Baking Company, Republic Paperboard, Shifflett, Silverline Plastics, Southwest Machine Tool, Telso, Tempe Inland, Winian Oaks Living Center, Winter Oaks Living Center

*0 members (0%) of the sample came from this portion of the population

Green Country Technology Center (n=15) Okmulgee	Alliance American, American Exchange Bank, Anchor Glass, Braden Cargo,

| Okmulgee County | Beeline Products, CP Kelco, Callidus Technologies, Cobra Manufacturing, Kelco Biopolymers, Morris State Bank, NDE Pipeline, Operating Engineers Local 2B, Parker Hannifin/Racor, Polyvision, Swearingen Machine Shop |

*1 member (1.69%) of the sample came from this portion of the population

| High Plains Technology Center (n=19) Woodward Woodward County | Cactus Drilling, Cheyenne Drilling, Deepwater Chemicals, Emergency Medical Services, Heritage Manor, Key Energy, Mutual of Omaha, NW Electric, Newman Memorial Hospital, Northwest Crane Services, Patterson Drilling, Seaboard, Terra International, Unibridge Systems, Unit Drilling, Unit Rig, Weatherford Artificial Lift, Western Farmers, Woodward Iodine |

*6 members (10.17%) of the sample came from this portion of the population

| Indian Capital Technology Center (n=15) Muskogee Muskogee County | American Foundry, Borg Warner, Baldor Electric, Cherokee Nation Industries, East Pointe Manufacturing, Fort James, Georgia Pacific, Gerber Coburn, Life Line Communications, Manufacturing Companies, Mrs. Smith's Bakery, Park Mfg./Blue Wave Boats, Schrader Bridgeport, Waterlow Industries, Whitlock Packaging Corp. |

*0 members (0%) of the sample came from this portion of the population

| Kiamichi Technology Center (n=29) Wilburton Multiple Counties | AES Shady Point, Allied Stone, Inc., Bibler Brothers Lumber, Boeing, Choctaw Manufacturing, Coleman, Custom Molded Plastics, Deepwater, Franklin Electric, Haskell County Health Care, Huntsman Packaging, Kiamichi Area Stone Alliance, Latimer County Hospital, National Oilwell, Pliant Corporation, Pre-Paid Legal, R&R Monogramming, Rosewood, Simmons, Simonton Windows, Southeast Alarm, Southeast Public Library, Sundowner Trailers, TotalNet Management, Unifirst, VIP Webcoat, Western Farmers, Weyerhauser, Wortz Companies |

*4 members (6.78%) of the sample came from this portion of the population

Meridian Technology Center (n=16) Stillwater Payne County	Armstrong World Industries, Audio Innovations, Autoquip, Charles Machine Works, Creative Labs, Inc., Fluid Technologies, Inc., Frontier Electronic Center, Logan County Hospital, Mercruiser, National Standard, Perry Memorial Hospital, Quebecor World, Railroad, Red Gate, REN Corporation, Tech Trol

*0 members (0%) of the sample came from this portion of the population

Metro Technology Center (n=17) Oklahoma City Oklahoma County	Ace Metal Finishing, Advanced Financial Solutions, Chef's Requested Foods, Cingular Wireless, Clean-It, Clement Foods, CNC Metal Products, Dallas-Miller Logistics, International Environmental, Lamson & Sessions, Lucas Color Card, Morrison Distribution, Phi Technologies, Public Supply, Resources, Inc., Total Protection Services, W.H. Stewart

*2 members (3.39%) of the sample came from this portion of the population

Mid America Technology Center (n=8) Wayne McClain County	Barrett Trailer, Chicago Miniature Lamps, Curwood, FairMeds.Com, Rural Electric Cooperative, Sharp Metal Fabricators, Viskase Corp., Walker & Sons

*0 members (0%) of the sample came from this portion of the population

Mid-Del Technology Centers (n=22) Oklahoma City Oklahoma County	Accurate Labs, American Airlines, Arinc, Chromalloy, Collins & Aikman (Textron), Dana Chassis, Dana Corporation, Dana Wix, Day & Zimmerman, Defense Logic Agency (DLA), Evans Electric, Fred Jones Ford, MTM Recognition, Ordermatic Corporation, Quad Graphics, SMC Technologies, Inc., Sooner Lift, Southwest / American Airlines, Stately, Inc., Textron, Western Plastics, Wood Group

*2 members (3.39%) of the sample came from this portion of the population

Moore Norman Technology Center (n=31) Moore, Norman	A&J Industries, A&H Fabricators, ARDCO, Beam's Industries, Benham Infrastructure,

Cleveland County	Bio-Cide International, Boise Express, Boise Office Products, Cendant Travel, Charles Machine Work, CMP Corporation, Coorstek, Dana Wix, Enviro Systems, Flow Boy, Fowler Design Group, Hitachi Corporation, KF Industries, Machine Tool Enterprise, Inc., McKinney Partnership, RadioTronix, Risk Metrics Group, Shaklee, Southwestern Wire, Tinker, Tower Tech, Vaughan Foods, Weather Decision Tech, Inc., Weather News, Yamanouchi/Shaklee, York International

*0 members (0%) of the sample came from this portion of the population

Northeast Technology Center (n=25) Prior Multiple Counties	Advance Mfg. & Hope Industries, AeroStar International, Automotive Services Blitz USA, Cinch Manufacturing, Control Components, Dana Corp., Boston Weatherhead, Dura-Line, Garner Garage, GLMC, Grand River Dam Authority, Hope Industries, Labinal, Inc., Lakewood Cabinetry, Malone's CNC Machining, Inc., Newell, Nupar Manufacturing, Precision Manufacturing & Machine, Quality Wood Products, Sawdust Factory, Tracker Marine Group, Umicore, UPCO, Verdigris Valley Industrial Council, Worthington Industries

*7 members (11.86%) of the sample came from this portion of the population

Northwest Technology Center (n=21) Alva, Fairview Woods, Major Counties	Beadles Nursing Home, Cargill Salt, Chesapeake Energy, Community National Bank, Davidson Electric, Fairview Fellowship Home, Fairview Municipal Hospital, Fairview Savings and Loan, Farmer's Merchant's Bank, GammaStream, IO-2 Services, Long Term Care, Mabar, Inc., Marten's Equipment, Mobile Products, Plane Plastics, Progressive Windows, U.S. Gypsum, Value Added Products, Waldon, Inc., Western Gas

*10 members (16.95%) of the sample came from this portion of the population

Pioneer Technology Center (n=26) Ponca City	Air Systems Components, Albertson, Asbury Machine, Bippo, Inc., Concraft,

Kay County	Conoco, Cyber DISC, Electron, Encompass Mold, Head Country, IBP, Mertz, Inc., Mid America Door, Modern Investment Casting, Nickles Machine, Precision Metal Fab, Precision Tool and Die, Quality Water Service, Residential Cooper, Rush Metals, Smith Tools, Sooner State Patterns Works, Southwest Cupid, Sykes Enterprises, Inc., Tonkawa Foundry, Tyson Foods

*5 members (8.47%) of the sample came from this portion of the population

Pontotoc Technology Center (n=16) Ada Pontotoc County	3-C Feeders, Apex Composites, Cammond Industries, General Aviation Modifications, Helcim, Inc., Holnam, Inc., Hy-Tec, I.H.S. Ballard Nursing, May Trailer/Tierra Madre, Native American, Peripheral Enhancements, Pre-Paid Legal Services, Shaw Machine Co., Solo Cup, U.S. Silica, Unimin/Techni-Sand

*0 members (0%) of the sample came from this portion of the population

Red River Technology Center (n=17) Duncan Stephens County	Albin's Enterprises, Inc., Basco Leather Goods, Cotton Electric, Electro-Biology Incorporated, Elliott Mobile Homes, Equipment Specialties, Family Dollar Distribution Center, Graphic Fabrications, Halliburton Energy, Hydra-Rig, Neal Technologies, Solitaire Homes, Sooner Trailers, Stim-Lab, Universal Fidelity, Valco Manufacturing, Wilcon Manufacturing

*0 members (0%) of the sample came from this portion of the population

Southern Technology Center (n=14) Ardmore Carter County	1800Flowers.com, Ardmore Foundry, Atlas Roofing, Circuit City, Dollar General, IMTEC, Joe Brown Company, Michelin NA, Rapistan Systems, Slaughter, Training Alliance of Southern Oklahoma, TriTech, V.E. Enterprises, Valero-Ardmore Refinery

*6 members (10.17%) of the sample came from this portion of the population

Southwest Technology Center (n=6) Altus Jackson County	American Gypsum, A-Team, Bar S Foods, KIMG, Luscombe Aircraft, Republic Gypsum

*0 members (0%) of the sample came from this portion of the population

Tri-County Technology Center (n=23) Bartlesville Washington County	1st National Bank, 21st Sensory, Inc., ABB Automation, ABB Totalflow, Adams Manufacturing, American Fiber Ind., Brent Industries, Component Manufacturing, Jane Phillips Medical Center, Jencast, J-S Machine and Valve, Keepsake Candles, NMW, Inc., Nowata Machine Works, Omni Products, Red Dirt Soap Company, Reda, Schlumberger, Siemens Applied Automation, Springs Industries, Superior Companies, Inc., United Linen, Wal-Mart Benefits

*0 members (0%) of the sample came from this portion of the population

Tulsa Technology Center (n=39) Tulsa Tulsa County	AirX Changers, Alliance for Manf. (Craftsmanship), Allied Motion, Bama Companies, Inc., Bixby Telephone, Bizjet, Central Specialties, Controls Components, DP Manufacturing, Enardo, Inc., F.W. Murphy Mfg., Fiber Pad, Flight Safety, Ford Motor Company, Hargrove Manufacturing, Hill Manufacturing, Honeywell, Horton Manufacturing, John Crane Lemco, Kimbrely-Clark, Love Envelopes, McKissick-Crosby, Motorguide Marine, MW Beuins, Norris/A Dover Co., Oil Capital Valve Co., Ok Fabricators, Port of Catoosa, Pound and Francs, Precision Components, Price Waterhouse, Process Manufacturing Company, Selco Custom Time Corp, The Crosby Group, Tulsa Tube Bending, Tulsa Winch, Inc., Visteon, Williams, World Com

*0 members (0%) of the sample came from this portion of the population

Wes Watkins Technology Center (n=12) Wetumka Hughes County	Aqua Farms, Chaffin Manufacturing, Citizen's State Bank, Creek Nation Hospital, Dean's Manufacturing Service, Enogex, Okemah, Okla. Swine Equipment, Inc., Quantum Construction, Rainbows and Halos, The Pork Group, Thermostat Construction

*2 members (3.39%) of the sample came from this portion of the population

Western Technology Center (n=11)	Bar-S Food Company, Chicago Rawhide,
Weatherford	Cordell Hospital, Doane Pet Care,
Multiple Counties	Ferrania, Freightliner, Imation, Janesville,
	Kodak Polychrome, North Fork
	Correctional, Southwestern Hospital

*2 members (3.39%) of the sample came from this portion of the population

| 29 Technology Centers | 552 Oklahoma businesses |

There was no delineation between companies of various sizes and/or locations in defining this population. The only rule for inclusion was that the company had taken part in an Existing Industry Training program from 2000 to 2004.   The defined population of the study included 848 different training contracts with 552 Oklahoma businesses to which questionnaires were mailed. Table 2 shows the major training topics that were undertaken for the population of 552 Oklahoma businesses as a part of the training contracts that made up the Existing Industry Training program from 2000 through 2004. A total of 848 training classes were undertaken during this same period.

Table 2

*Major Training Topics Undertaken in the Population: Existing Industry Training
Program 2000 – 2004*

Training Subject	Number of training opportunities
Management/HR/Quality/Supervision	146
Computer Related Training	101
Lean (Manufacturing, Office, etc.)	39
CNC/CMM/Machining Related	36
Maintenance	36
ISO Related Training	24
Welding Training	19
PLC Training	17
Miscellaneous Training (VF Drives, Wound Care)	430

The sample for the study included 59 Oklahoma businesses that elected to return

the research questionnaire. Table 3 shows the State CareerTech technology centers and

number of population and sample businesses with which Existing Industry training was

conducted during the years 2000 – 2004.

Table 3

Population and Sample: Oklahoma Businesses Participating in Existing Industry Training 2000 – 2004

Technology Center	Number of Businesses in Sample and Population by Technology Center District		
	n (Sample)		N (Population)
Autry Technology Center	0	of	25
Caddo – Kiowa Technology Center	0	of	6
Canadian Valley Technology Center	5	of	23
Central Technology Center	2	of	13
Chisholm Trail Technology Center	1	of	4
Eastern Oklahoma Technology Center	0	of	3
Francis Tuttle Technology Center	0	of	37
Gordon Cooper Technology Center	4	of	23
Great Plains Technology Center	0	of	33
Green Country Technology Center	1	of	16
High Plains Technology Center	6	of	19
Indian Capital Technology Center	0	of	15
Kiamichi Technology Center	4	of	29
Meridian Technology Center	0	of	16
Metro Technology Center	2	of	18
Mid-America Technology Center	0	of	9
Mid-Del Technology Center	2	of	22
Moore Norman Technology Center	0	of	32
Northeast Technology Center	7	of	26
Northwest Technology Center	10	of	21

Pioneer Technology Center	5	of	26
Pontotoc Technology Center	0	of	17
Red River Technology Center	0	of	17
Southern Technology Center	6	of	12
Southwest Technology Center	0	of	6
Tri-County Technology Center	0	of	22
Tulsa Technology Center	0	of	39
Wes Watkins Technology Center	2	of	12
Western Technology Center	2	of	11
29 Oklahoma Technology Centers	59	of	552

It was the intent of the researcher for the study to be a census study based upon a nearly 100 percent return rate of survey questionnaires. The researcher worked through the BIS Directors of the technology centers and believed that the relationships with current BIS directors in the CareerTech system would allow this to come to fruition. It simply did not come to pass. This may have had something to do with the territorial nature of various technology center districts and need of some BIS directors to protect themselves, their technology center, or those businesses that were asked to fill out the survey questionnaire. Fifty-nine out of 552 surveys were returned, for a return rate of 10.69 percent. While this was disappointing to the researcher, it does fall within what can be considered adequate for a descriptive research study. For descriptive research, it is common to sample 10-20 percent of the population (Gay & Airasian, 2000).

As a comparison between the population and sample, Table 4 shows the

difference in the number of classes and the amount of training invoiced for during the

years 2000 – 2004 including both the population and the sample in the study.

Table 4

Population vs. Sample: Number of Classes/Training Invoiced in Existing Training Program – 2000-2004

Year	Number of Classes	Cost
	Population	
2000	161	$1,161,763.13
2001	157	$1,455,062.92
2002	177	$1,538,750.38
2003	162	$1,047,018.32
2004	191	$1,484,191.97
Total	848	$6,686,786.72
	Sample	
2000	12	$100,907.96
2001	12	$115,815.74
2002	10	$52,012.49
2003	12	$85,178.66
2004	13	$50,593.42
Total	59	$404,508.27

This suggests that while the number of businesses included in the sample is

adequate (i.e. more than 10 percent), both the number of total individual training

programs and the training expenditure represented in the sample is low, and caution must

be used in generalizing the sample findings to the population.

A demographic variable on which the sample was compared to the population to

examine its representativeness was the urban versus rural makeup of the members.   For

this study, the following definitions of urban and rural were used: Urban: Oklahoma

businesses who participated in Existing Industry Training programs and worked with the

following technology centers: Francis Tuttle, Metro Tech, Mid-Del, Moore Norman, and

Tulsa. Rural: All remaining businesses who participated in an Existing Industry

Training program. Table 5 shows the difference between the urban versus rural makeup

of the population and sample of the study. A total population of 32,348 individuals were

trained in the Existing Industry Training program. The sample included 1,507

individuals, or 5 percent of the population, who were trained in the Existing Industry

Training program.

Table 5

Population vs. Sample: Number of Businesses in Urban and Rural Areas –
2000-2004

Location	Number of Businesses	Percentage
	Population	
Urban	205	37.8%
Rural	347	62.2%
	N = 552	
	Sample	
Urban	4	6.7%
Rural	55	93.3%
	n = 59	

The researcher ran a χ2 statistical analysis on the above data. This

$$\chi2 = \Sigma \ \frac{(observed - expected)}{expected}$$

statistical analysis yielded a chi-square of 23.49 with 1 degree of freedom at an alpha

level (p) of .00. These data indicate that the number of trained individuals represented in

the sample is small (i.e. 5 percent), and that the sample has a significantly different

urban/rural make-up from the population. These are additional indications of reasons for

caution in generalizing the sample findings to the population.

A second demographic variable on which the sample was compared with the

population to determine its representativeness was the sizes of the businesses. For this

study, small, medium, and large businesses were defined as follows:

Small: 0 – 100 employees

Medium: 101 – 300 employees

Large: 301 + employees

Table 6 shows the number of businesses of each size in the population and

sample. For this comparison, only 2004 data were used because data for previous years

were not available.

Table 6

Population vs. Sample: Number of Small, Medium, and Large Oklahoma
Existing Industry Businesses-2004.

Size of Business	Number of Businesses	Percentage
	Population	
Small	96	50.2%
Medium	64	33.5%
Large	31	16.3%
N =	191	
	Sample	
Small	11	84.6%
Medium	2	15.4%
Large	0	0%
n = 13		

There were a total of 191 Oklahoma businesses total that took part in an Existing

Industry Training program during the year 2004. The researcher ran a χ^2 statistical

analysis on the above data. This

$$\chi^2 = \Sigma \ \frac{(observed - expected)}{expected}$$

statistical analysis yielded a chi-square of 10.29 with 2 degrees of freedom at an alpha

level (p) of .01.

These data indicate that the sample has a significantly different business-size

distribution than does the population. Since the sample differs significantly from the

population, this is another indication of need to use caution in generalizing from the

sample to the population.

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The researcher should always exercise caution when attempting to generalize the findings of the sample to the population of a study. It is generally preferable to the researcher to be able to generalize the findings of the sample to the population. According to Frankel and Wallen:

> Population generalizability refers to the degree to which a sample represents the population of interest. If the results of a study only apply to the group being studied, and if that group is fairly small or is narrowly defined, the usefulness of any findings is seriously limited (2003, p. 109).

Since, in this study, the sample is small (n=59) as compared to the overall population (N=552) of the study, and differs significantly from the population on at least two important demographic variables, the researcher suggests that great caution be used when attempting to generalize the findings. For this reason, data analysis was entirely descriptive and no inferential statistics were applied in this study.

<p align="center">Data Sources and Instrumentation</p>

<u>Archived Data from ODCTE</u>

The researcher worked with officials at the Oklahoma Department of Career and Technology Education (ODCTE) to secure archived data for the Existing Industry Training Program during the years, 2000 – 2004. This archived data included the project number, date of training, technology center involved in each training contract, Oklahoma business involved in that particular training contract, type of training, number of employees at that particular Oklahoma business, number of employees trained in that particular training project, and cost of that particular training project. The researcher, as well as officials at ODCTE, recognized that this type of research offered a comprehensive

opportunity to empirically study the Existing Industry Training Program for the first time ever.

Questionnaire

The questionnaire used in the study was developed based on a questionnaire that was previously employed by the researcher during a Master's thesis research project. The questionnaire was constructed so as to allow for collection of data from several different perspectives. The questionnaire is available in Appendix A for review.

The first section of the questionnaire asked the participating Oklahoma businesses to rate their level of satisfaction with the Existing Industry Training program. There were five questions that included data concerning each company's opinion concerning the level of satisfaction in the following areas:

1. Local technology staff assistance during Existing Industry Training program.

2. Timeliness of response by local technology center staff upon initial request for training.

3. Communication between the Oklahoma business and the local technology center staff during Existing Industry Training program.

4. Handling of problems (if applicable) by local technology center staff during Existing Industry Training program.

5. Rating of overall experince by Oklahoma comp any with Existing Industry training program.

These questions were formatted such that the respondent was asked to rate each question using a five-point Likert type scale. Response was made by circling the appropriate number, using the following scale:

1 = Very Dissatisfied

2 = Dissatisfied

3 = No Opinion

4 = Satisfied

5 = Very Satisfied

The second section of the questionnaire asked some open-ended questions concerning what each business "liked the most" concerning the Existing Industry training program. It also included questions concerning what each business "liked the least," and what these businesses "would like to see changed about the Existing Industry Training program." Finally, each business was asked to "describe or explain the results or effects of the training received through the Existing Industry Training program" on its business.

The third section of the questionnaire asked some specific questions concerning the return on investment and economic impact of training provided through the Existing Industry training program, including:

1. Number of jobs created as a result of Existing Industry Training program.

2. Average wage (per hour) for new employees at the time they received training as part of the Existing Industry Training program.

3. Number of these employees still employed today.

4. Average wage (per hour) of these employees today.

5. Average wage (per hour) of existing employees at the time they received training as part of the Existing Industry Training program.

6. Number of existing employees still employed today.

7. Average wage (per hour) of existing employees today.

8. Amount of monies saved, realized, and/or gained (increased output, improved efficiency, improved profits, fewer accidents, less down time, etc.) as a result of the Existing Industry Training program over the five year period 2000 – 2004.

The final section of the questionnaire asked each Oklahoma business to supply demographic information about its particular company, including location by county, size of community within which the business resides, number of employees, and gross sales for the previous year.

<u>Focus Group</u>

A focus group interview is an inexpensive, rapid appraisal technique that can provide managers with a wealth of qualitative information on performance of development activities, services, and products, or other issues (Kumar, 1987, p. 1). Following are some guidelines for selecting participants for focus groups:

> Most focus groups research relies on purposive sampling with researchers selecting participants based on the project and on the potential contributions of participants. Alternatively, participants can be randomly selected form a larger group that should be able to give insight into a topic (Barnett,2005; Miles & Huberman,1984, p. 1).

The researcher used purposive sampling to develop a focus group of stakeholders, and scheduled a meeting in May, 2005, to review the findings of the research study.

<div align="center">Procedures</div>

<u>Archived Data from ODCTE</u>

The researcher worked with officials of ODCTE to obtain archived data concerning the Existing Industry Training program for the timeframe of 2000 – 2004.

There were no problems in obtaining this data, and the data provided a holistic look at the Existing Industry Training program for the timeframe 2000 – 2004. An example of raw data is available for review in Appendix B. This data was used in tabulating descriptive data on the study's population and sample, and on economic impact and ROI calculations.

Questionnaire

The questionnaire was developed from a questionnaire previously employed by the researcher. The questionnaire was submitted to and approved for use by the Institutional Review Board. The researcher used a small group of Oklahoma BIS Directors to pilot and validate the questionnaire prior to sending out the 552 questionnaires to the study's population. From this process, the researcher received some valuable input concerning how to better present the questionnaire to the population. Small, non-substantive changes were made to the questionnaire based upon the input of the pilot group. The questionnaires were then readied and mailed to Oklahoma BIS Directors to be distributed to each of the 552 Oklahoma businesses that participated in the Existing Industry Training program.

The researcher sent packets to each BIS Director that contained the questionnaires for each Oklahoma business that resided within that particular technology center district. Instructions were included with each packet that asked the BIS Director to mail each questionnaire to a particular business and follow up the mailing with a phone call. The BIS Director also had the option of hand delivering the questionnaire to the business. Postage was included with each questionnaire to allow for return mail of the questionnaire to the researcher. Out of 59 questionnaires that were returned to the researcher, 57 of those were mailed directly to the researcher from the businesses. Two

were mailed to CareerTech and then forwarded on to the researcher. Also included were

two Participant Consent Forms. Each business was asked to sign both copies of the

Participant Consent Form, fill out the questionnaire, keep one copy of the Participant

Consent Form, and mail the other along with the filled out questionnaire to the

researcher. The questionnaires were mailed out in early November of 2004 and the

sample (n=59) were recovered by early February of 2005.

<u>Focus Group</u>

Focus groups are well established as a qualitative data–gathering tool, and the

definition of the technique is straightforward:

> A focus group interview is an interview with a small group (usually four
>
> to eight people) who are asked to think about a series of questions asked
>
> by the interviewer. The participants are seated together in a group and get
>
> to hear one another's responses to the questions. Often they offer
>
> additional comments beyond what they originally had to say once they
>
> hear the other responses. They may agree or disagree; consensus is
>
> neither necessary or desired. The object is to get at what people really
>
> think about an issue or issues in a social context where participants can
>
> hear the views of others and consider their own views accordingly
>
> (Frankel & Wallen, 2003, p. 462).

The researcher used a focus group in this study in a similar fashion to that used by

Linkenbach (1995). In both studies, the focus group was employed as a sounding board

to review the findings and give input of their knowledge and insights into the data from

the research prior to releasing the results to the general public. This process allowed

community stakeholders to provide their own insights, beliefs, and thoughts about the meaning of the data (Gay & Airasian, 2000).

The focus group was made up of stakeholders from the Existing Industry Training program process. These individuals included two BIS Directors, Existing Industry Training program personnel and the BIS department management team members from the Oklahoma Department of Career and Technology Education (ODCTE). The focus group meeting was held at the ODCTE in Stillwater, Oklahoma. The focus group was asked to answer the following questions concerning economic impact, return on investment, and customer satisfaction.

<u>Focus Group Questions</u>

1.   What does the data reveal to you concerning Return on Investment, Economic Impact and/or Customer Satisfaction concerning the Existing Industry Training Program? Do you agree with the findings, yes or no, and why?

2.   What does the term ROI or Return on Investment mean to you and your organization? Is it a good idea / bad idea?

3.   Please relate you relative knowledge of ROI?

4.   What barriers do you see to implementing a coordinated ROI initiative in your organization?

5.   What outcomes (positive/negative) do you see as a result of implementing a coordinated ROI initiative in your organization?

6.   If you do not now employee an ROI initiative in your organization, why not and do you see any advantages or disadvantages to implementing an ROI initiative in the near future?

7.   After reviewing the findings of this study, what are your impressions, ideas, comments concerning the present situation in the State of Oklahoma as it relates to the implementation of ROI by Oklahoma businesses?

The proceedings of the meeting were recorded on audio tape and transcribed into written form. The written transcription from the focus group meeting is available for review in Appendix C.

Data Analysis

Data analysis was performed on the economic impact and ROI components of the study using descriptive statistics and the standard ROI calculation formula. Customer satisfaction data from the research survey of Oklahoma businesses were analyzed with summary descriptive statistics and cross-tabulations. The data obtained from the focus group were analyzed qualitatively using content analysis and thematic coding.

CHAPTER IV

FINDINGS

Data Collection

The researcher incorporated a variety of methods to collect the data as analyzed here. For this study, data were collected from archived information at the Oklahoma Department of Career and Technology Education (ODCTE), from a sample of Oklahoma businesses (n=59) who elected to take part in an ODCTE Existing Industry Training program, and through a focus group process modeled after Linkenbach's Montana Alcohol Server's Study (1995).

Data were collected to answer each of the research questions presented in chapters one and three. Following is the data presentation related to each of the study's research questions.

Data Analysis

Research Question 1: Economic Impact and ROI of Existing

 Industry Training Program

Research question number one asked, "What is the economic impact and Return on Investment (ROI) of training conducted within the context of the Existing Industry Training program by ODCTE?" The researcher used both archived and survey questionnaire data to answer this question. Economic impact was assessed in terms of employment, wages, and financial benefits reported by participating Oklahoma businesses. Table 7 presents relevant data relating to economic impact of the Existing Industry Training program to the Oklahoma businesses in the sample. Table 7 shows the data concerning the new jobs created, wages paid, and new employees still employed as a

result of an Oklahoma business taking part in an Existing Industry Training program as

self-reported by the businesses themselves.

Table 7

New Employees Hired, Average Wage for New Employees, and Number of New Employees Still Employed Today

	Total	Average per business
New Employees Hired	162	3.86
Wage Per Hour Per New Employee	$308.71	$5.23
Number of New Employees Still Employed Today	158	11.22
Wage Per Hour for New Employee as of Today	$418.31	$18.19
Wage Per Hour of Existing Employees at time they received E.I. Training	$631.30	$15.40
Number of Existing Employees Still Employed Today	134	31.23
Wage Per Hour of Existing Employees as of Today	$685.73	$15.58
Amount of Monies Saved, Realized, and/or Gained as a Result of the Existing Industry Training Program	$2,035,711.00	$96,938.62
Other Monetary Effects of Having Been Involved in Training as Part of the Existing Industry Training Program.	$17,000.00	$17,000.00
Sample (n=59)		

The sample data showed that 162 new employees were hired as a result of an Oklahoma businesses taking part in an Existing Industry Training program. Of interest to the researcher was the fact that the average wage for new employees per hour was $7.53. The average as of the date of the filling out of the survey questionnaire was $15.40. It would be dangerous to generalize that the training conducted as a part of the Existing Industry Training program had an effect on the average wage per hour of these employees. However, there was a large increase over this timeframe. Of course, the number that represents the largest amount of economic impact was the "Amount of Monies Saved, Realized, and/or Gained as a result of the Existing Industry Training Program," which totaled $2,035,711.00.

To calculate the Return on Investment (ROI) for the Existing Industry Training program, both cost and benefit data were necessary. ROI calculation requires extensive costing data, as illustrated in the suggested costing sheets developed by Patricia Phillips. The above listed data was not available from ODCTE. This study revealed that they do not collect this data at the present time. Some relevant data were collected as part of the survey questionnaire sent to the participating Oklahoma businesses. The researcher could obtain from ODCTE only an overall costing figure which represents the funds spent by ODCTE to fund the program during the years 2000-2004. This same definition was applied to the ROI benefits figure. The financial benefits of the program were derived from the self-reported figures as supplied by members of the sample. The researcher obtained from the data gathered on the sample (n=59) the cost to the Oklahoma Department of Career and Technology Education (ODCTE) for conducting Existing Industry Training. The total cost to the Department for conducting the training equaled $409,861.30. As reported above, the self-reported amount of monies saved, realized,

and/or gained by Oklahoma businesses as a result of taking part in the Existing Industry

Training program during this same period equaled $2,035,711.00. Applying Phillips'

Return on Investment formula, the data revealed the following:

$$\text{ROI} = \frac{B - C \text{ or Net Benefit}}{C} \quad x \quad 100$$

$$\text{ROI} = \frac{\$2,035,711.00 - \$409,861.30}{\$409,861.30} \quad x \quad 100$$

Return on Investment = 3.96 x 100 = 396 percent

The above formula yields a Return on Investment of $3.96 for every $1.00

expended by the ODCTE to fund the training conducted for the 59 businesses in the

sample during the years 2000-2004. The researcher understands and readily admits that

all costs incurred by the Oklahoma businesses (e.g. employee wages paid while attending

training, etc.) who took part in Existing Industry Training are not included in the above

equation. The data required for full ROI calculations are presently unavailable in the

ODCTE system.

Research Question 2: General Customer Satisfaction with Existing Industry

Training Program

Research question number two asked, "What is the general level of customer

satisfaction with training conducted in the context of the Existing Industry Training

program by Oklahoma career technology centers for selected Oklahoma businesses?"

Data were collected as part of the survey questionnaire through the use of both five-point

Likert scale items and open-ended response questioning techniques.

Table 8

Ratings (on 5-point scale) for All Five Customer Satisfaction Questions Found in Survey Questionnaire

Question Number & Topic	Mean	Mode	Standard Deviation
1. Local TC staff assistance during EI Training Program	4.75	5.000	.4853
2. Timeliness of response by local TC staff upon initial request for training	4.76	5.000	.5196
3. Communication between your business and the local TC staff during EI Training Program	4.69	5.000	.5001
4. Handling of problems (if applicable) by local TC staff that arose during the EI training program	4.67	5.000	.6594
5. Overall experiences with the EI training program	4.72	5.000	.4931

Sample (n=59)

The descriptive data in Table 8 indicate that those Oklahoma businesses that took part in the Existing Industry Training program indicated that their experience with the Existing Industry Training program was on the whole a very positive one. The overall mean of the five questions equaled 4.705 on a five-point Likert scale.

The survey questionnaire also included four separate questions aimed at gathering data through the use of open-ended responses. These questions are included in the questionnaire that can be reviewed in Appendix A. Table 9 presents summary data for each of the four open-ended questions. Through content analysis and category coding,

the researcher reduced all responses to open-ended questions into four categories and listed under each category positive and/or negative responses by frequency. The entire listing of responses can be viewed in Appendix D. The four categories identified were:

1. Financial gain or monies/time saved as a result of participation in an Existing Industry Training program.

2. Improved processes due to training conducted within the Existing Industry Training program.

3. Flexibility of local technology center staff in delivering Existing Industry Training.

4. Level of staff productivity change as a result of participation in an Existing Industry Training program.

Table 9

Summary of Responses by Category for Open-Ended Questions 6-10

Category	Positive Responses	Negative Responses
1. Financial Gain	29	1
2. Improved Processes	10	1
3. Flexibility of Training	57	26
4. Staff Productivity Change	48	2
Totals	144	30

Of the 30 negative responses, most were related to needing more money in the Existing Industry Training Program.

Research Question 3: Satisfaction By Business Demographic Variables

Research question number 3 asked, "Are there differences in the level of customer satisfaction with training conducted in the context of the Existing Industry Training program by Oklahoma career technology centers for selected Oklahoma businesses based on size of community in which the business resides, number of individuals employed by the business, or annual gross sales of the business?" To answer this question, the researcher loaded the raw data obtained from the research questionnaire into SPSS statistical software and ran frequency and cross tab analyses on the sample data. Table 10 shows the frequencies for each demographic variable for the Oklahoma businesses that participated in the study.

Table 10

Frequencies for Business Demographic Variables in Sample (n=59)

Variable	Frequency
Community Size	
Rural	6
Fewer than 2,000	2
2,000-4,999	11
5,000-9,999	6
10,000-14,999	7
15,000-19,999	3
20,000-49,999	15
50,000-99,999	2
100,000-499,999	3
500,000 and Up	4

Number of Employees

Less than 10	5
11-100	31
101-250	13
251-500	9
501-1000	1
1001-2000	0
More than 2000	0

Gross Sales (Previous Year)

$0-$100,000	7
$101,000-$249,999	2
$250,000-499,999	6
$500,000-$999,999	3
$1,000,000-$4,999,999	16
$5,000,000-$9,999,999	8
Over $10,000,000	17

The data was then condensed into three smaller categories due to the small return (n=59) of survey questionnaires.

The researcher condensed the sub-groups and re-ran the data using SPSS to cross-tabulate customer satisfaction issues against business demographics. For this analysis, demographic categories were collapsed as follows:

Size of Community variables
Rural-9,999
10,000-49,999
50,000 and Up

Number of Employees
0-99
100-499
500 and Up

Gross Sales (Previous Year)
$0-$999,999
$1,000,000-$4,999,999
$5,000,000 and Up

This condensing of categories eliminated many groups with zero or very small numbers and focused analysis in major categorical separations. Tables 26-40 present the cross-tabulation frequencies for the condensed business categories.

Table 11

Cross-Tabulation: Frequency of Satisfaction Ratings for Local Technology Center Staff During Training Program x Community Size of Business

| | Satisfaction of Technology Center Staff Rating (Frequency) | | | | |
	1	2	3	4	5
Community Size					
Rural-9,999	0	0	0	7	17
10,000-49,999	0	0	1	4	22
50,000 and Up	0	0	0	3	5

It should be noted that the largest number of responses (27 or 45.76%) came from the Size of Community group of 10,000-49,999.

Table 12

Cross-Tabulation: Frequency of Satisfaction Ratings for Timeliness of Response by Local Technology Center Staff Upon Initial Request for Training x Community Size of Business

| | Satisfaction of Technology Center Staff Rating (Frequency) | | | | |
	1	2	3	4	5
Community Size					
Rural-9,999	0	0	1	5	18
10,000-49,999	0	0	1	4	22
50,000 and Up	0	0	0	3	5

It should be noted that the largest number of responses (27 or 45.76%) came from the Size of Community group of 10,000-49,999.

Table 13

Cross-Tabulation: Frequency of Satisfaction Ratings for Communication Between Your Business and the Local Technology Center Staff x Community Size of Business

| | Satisfaction of Technology Center Staff Rating (Frequency) | | | | |
	1	2	3	4	5
Community Size					
Rural-9,999	0	0	0	7	17
10,000-49,999	0	0	1	5	21
50,000 and Up	0	0	0	4	4

It should be noted that the largest number of responses (27 or 45.76%) came from the Size of Community group of 10,000-49,999.

Table 14

Cross-Tabulation: Frequency of Satisfaction Ratings for Handling of Problems (if applicable) By the Local Technology Center Staff x Community Size of Business

| | Satisfaction of Technology Center Staff Rating (Frequency) | | | | |
	1	2	3	4	5
Community Size					
Rural-9,999	0	0	4	2	18
10,000-49,999	0	0	2	4	21
50,000 and Up	0	0	0	2	6

It should be noted that the largest number of responses (27 or 45.76%) came from the Size of Community group of 10,000-49,999.

Table 15

Cross-Tabulation: Frequency of Satisfaction Ratings for Overall Experience with the Existing Industry Training Program x Community Size of Business

	Satisfaction of Technology Center Staff Rating (Frequency)				
	1	2	3	4	5
Community Size					
Rural-9,999	0	0	0	6	18
10,000-49,999	0	0	1	6	20
50,000 and Up	0	0	0	3	5

It should be noted that the largest number of responses (27 or 45.76%) came from the Size of Community group of 10,000-49,999.

Table 16

Cross-Tabulation: Frequency of Satisfaction Ratings for Local Technology Center Staff During Training Program x Number of Employees

	Satisfaction of Technology Center Staff Rating (Frequency)				
	1	2	3	4	5
Number of Employees					
0-99	0	0	0	1	5
100-499	0	0	1	12	33
500 and Up	0	0	0	1	6

It should be noted that the largest number of responses (46 or 77.97%) came from the Number of Employees group of 100-499.

Table 17

Cross-Tabulation: Frequency of Satisfaction Ratings for Timeliness of Response by Local Technology Center Staff Upon Initial Request for Training x Number of Employees

	Satisfaction of Technology Center Staff Rating (Frequency)				
	1	2	3	4	5
Number of Employees					
0-99	0	0	0	0	6
100-499	0	0	2	11	33
500 and Up	0	0	0	1	6

It should be noted that the largest number of responses (46 or 77.97%) came from the Number of Employees group of 100-499.

Table 18

Cross-Tabulation: Frequency of Satisfaction Ratings for Communication Between Your Business and the Local Technology Center Staff x Number of Employees

	Satisfaction of Technology Center Staff Rating (Frequency)				
	1	2	3	4	5
Number of Employees					
0-99	0	0	0	1	5
100-499	0	0	1	13	32
500 and Up	0	0	0	2	5

It should be noted that the largest number of responses (46 or 77.97%) came from the Number of Employees group of 100-499.

Table 19

Cross-Tabulation: Frequency of Satisfaction Ratings for Handling of Problems (if applicable) By the Local Technology Center Staff x Number of Employees

	Satisfaction of Technology Center Staff Rating (Frequency)				
	1	2	3	4	5
Number of Employees					
0-99	0	0	0	2	4
100-499	0	0	5	6	35
500 and Up	0	0	1	0	6

It should be noted that the largest number of responses (46 or 77.97%) came from the Number of Employees group of 100-499.

Table 20

Cross-Tabulation: Frequency of Satisfaction Ratings for Overall Experience with the Existing Industry Training Program x Number of Employees

| | Satisfaction of Technology Center Staff Rating (Frequency) | | | | |
	1	2	3	4	5
Number of Employees					
0-99	0	0	0	1	5
100-499	0	0	1	12	33
500 and Up	0	0	0	2	5

It should be noted that the largest number of responses (46 or 77.97%) came from

the Number of Employees group of 100-499.

Table 21

Cross-Tabulation: Frequency of Satisfaction Ratings for Local Technology Center Staff During Training Program x Gross Sales (Previous Year)

| | Satisfaction of Technology Center Staff Rating (Frequency) | | | | |
	1	2	3	4	5
Gross Sales (Previous Year)					
$0-$999,999	0	0	0	3	15
$1,000,000-$4,999,999	0	0	0	5	11
$5,000,000 and Up	0	0	1	6	18

It should be noted that the largest number of responses (25 or 42.37%) came from the Gross Sales (Previous Year) group of $5,000,000 and Up.

Table 22

Cross-Tabulation: Frequency of Satisfaction Ratings for Timeliness of Response by Local Technology Center Staff Upon Initial Request for Training x Gross Sales (Previous Year)

| | Satisfaction of Technology Center Staff Rating (Frequency) | | | | |
	1	2	3	4	5
Gross Sales (Previous Year)					
$0-$999,999	0	0	0	2	16
$1,000,000-$4,999,999	0	0	1	4	11
$5,000,000 and Up	0	0	1	6	18

It should be noted that the largest number of responses (25 or 42.37%) came from the Gross Sales (Previous Year) group of $5,000,000 and Up.

Table 23

Cross-Tabulation: Frequency of Satisfaction Ratings for Communication Between Your Business and the Local Technology Center Staff x Gross Sales (Previous Year)

	Satisfaction of Technology Center Staff Rating (Frequency)				
	1	2	3	4	5
Gross Sales (Previous Year)					
$0-$999,999	0	0	0	4	14
$1,000,000-$4,999,999	0	0	0	6	10
$5,000,000 and Up	0	0	1	6	18

It should be noted that the largest number of responses (25 or 42.37%) came from the Gross Sales (Previous Year) group of $5,000,000 and Up.

Table 24

Cross-Tabulation: Frequency of Satisfaction Ratings for Handling of Problems (if applicable) By the Local Technology Center Staff x Gross Sales (Previous Year)

	Satisfaction of Technology Center Staff Rating (Frequency)				
	1	2	3	4	5
Gross Sales (Previous Year)					
$0-$999,999	0	0	1	3	14
$1,000,000-$4,999,999	0	0	2	3	11
$5,000,000 and Up	0	0	3	2	20

It should be noted that the largest number of responses (25 or 42.37%) came from the Gross Sales (Previous Year) group of $5,000,000 and Up.

Table 25

Cross-Tabulation: Frequency of Satisfaction Ratings for Overall Experience with the Existing Industry Training Program x Gross Sales (Previous Year)

	Satisfaction of Technology Center Staff Rating (Frequency)				
	1	2	3	4	5
Gross Sales (Previous Year)					
$0-$999,999	0	0	0	3	15
$1,000,000-$4,999,999	0	0	0	6	10
$5,000,000 and Up	0	0	1	6	18

It should be noted that the largest number of responses (25 or 42.37%) came from the Gross Sales (Previous Year) group of $5,000,000 and Up.

To complete the cross-tabulation analysis and fully address the research question regarding relationships between business demographic variables and levels of customer satisfaction with various aspects of the Existing Industry Training Program, the researcher added an analysis based on mean satisfaction ratings. These data are reported in Table 26.

Table 26

Mean Satisfaction Ratings of Businesses (n=59) on Aspects of Existing Industry Training Program

	Local Tech Center Staff During Training	Timeliness of Response by Local Tech Center Staff Upon Initial Request For Training	Communication Between Business` Center Staff	Handling of Problems (if any) by Local Tech Center	Overall Experience with Program	Row Mean
Community Size of Business Location						
Rural – 9,999 (n=24)	4.71	4.71	4.71	4.58	4.75	4.69
10,000-49,999 (n=27)	4.78	4.78	4.74	4.70	4.70	4.74
50,000 and UP (n=8)	4.63	4.63	4.50	4.75	4.63	4.63
Number of Employees In Business						
0-99 (n=6)	4.83	5.00	4.83	4.67	4.83	4.83
100-499 (n=46)	4.70	4.67	4.67	4.65	4.70	4.68
500 and Up (n=7)	4.86	4.86	4.71	4.71	4.71	4.77
Gross Sales of Business (Previous Year)						
$0-$999,999 (n=18)	4.83	4.89	4.78	4.72	4.83	4.81
$1,000,000-$4,999,999 (n=16)	4.69	4.63	4.63	4.56	4.63	4.63
$5,000,000 and Up (n=25)	4.68	4.68	4.68	4.68	4.68	4.68
Column Mean	4.75	4.76	4.69	4.67	4.72	4.72

In general, the means for all the demographic sub-groups were very similar, and highly positive. Thus, there is no observable relationship between the business demographic variables and customer satisfaction ratings.

Table 26 indicates that the highest mean response to customer satisfaction question number one came from the number of employees sub-group of 500 and Up. This mean was 4.86. The highest mean response to customer satisfaction question number two came from the number of employees sub-group of 0-99. This mean was 5.00. The highest mean response to customer satisfaction question number three came from the number of employees sub-group of 0-99. This mean was 4.83. The highest mean response to customer satisfaction number four came from the gross sales of business (previous year) sub-group of $0-$999,999. This mean was 4.72. The highest mean response to customer satisfaction number five came under this same gross sales of business (previous year) sub-group of $0-$999,999. This mean was 4.83. The highest overall mean response came from the number of employees in business sub-group of 0-99. This mean was 5.00. The lowest overall mean response came from the community size of business location sub-group of 50,000 and up. This mean was 4.50.

The row means in each demographic area reveal the following. The highest row mean within the demographic factor, Community Size of Business Location, fell in the sub-group of 10,000-49,999. This mean was 4.74. The highest row mean within the demographic factor, Number of Employees in Business, fell in the sub-group of 0-99. This mean was 4.83. The highest row mean within the demographic factor, Gross Sales of Business (Previous Year), fell in the sub-group of $0-$999,999. This mean was 4.81. The data showed that the highest customer satisfaction levels fell with Oklahoma

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businesses that resided in communities that ranged in size from 10,000-49,999. These

businesses employed 0-99 employees, and had sales from $0-$999,999.

<div align="center">Focus Group</div>

The researcher met with the focus group on May 18, 2005, at the Oklahoma

Department of Career and Technology Education (ODCTE) in Stillwater, Oklahoma.

The meeting was held at 1:00 p.m. The participants in attendance included three State

Department BIS personnel, two BIS directors from technology centers, and the

researcher.   There were two Oklahoma business owners who were scheduled to be in

attendance at this focus group meeting. However, at the last minute, they both had to

cancel because of unanticipated job responsibilities. In the analysis reported here, the

people in attendance for the focus group meeting are identified as follows:

        RES: Researcher
        SD1:   State Department Person Number One
        SD2:   State Department Person Number Two
        SD3:   State Department Person Number Three
        BIS1: BIS Director Number One
        BIS2: BIS Director Number Two

The researcher began the focus group by welcoming the participants and

informing all present that he was recording these proceedings and that the recording

would be transcribed and then the recording would be properly disposed of. None of the

participants voiced any concern about the recording of the session. The focus group

meeting was recorded, and the recording was used to create a written transcription that

was the basis for the following analysis of the focus group input. The researcher was

unable to send the findings to all those in attendance at the focus group meeting prior to

the time of the meeting. Thus, the first order of business was to go over the research in

general terms and look at the findings. This was followed by asking the focus group the

questions as discussed in Chapter III. The entire transcript of the focus group meeting is available in Appendix C.

Several major findings came from the focus group meeting, including the following:

1. The focus group participants did not appear to be concerned about the relatively small size of the sample in the study, indicating an acceptance of its adequacy. However, they raised the issue of why the sample may have been small.

> I know that you had hoped for more, but I think on mail-outs, it's way above the national average (SD3).

> It would be interesting to know if the response had anything to do with the relationship and rapport between the technology center and the company (SD1).

2. The focus group indicated support for the ROI concept and process, and that they felt more importance should be placed on ROI understanding and implementation in CareerTech on a statewide basis.

> …We are going through a culture change both here in the agency and out in companies from a standpoint of we think programs are pretty good but we cannot say for a fact what kind of return we have received on a given project (SD2).

> I'd like some way in the guidelines as part of that existing industry agreement that says you will complete this so that we can collect data on 100 percent of the projects (SD3).

> I think that we need to have a situation to where the IC has told the company that when the training is completed a survey is going to be

conducted and that we are going to ask certain questions and then we will come back in 6 months and follow up with similar questions. That way, everybody will be expecting that and that will help eliminate the problem of a small sample. Our sample then should be 100 percent and the answering of the survey will be a condition of receiving existing industry funds (BIS1).

I think that when you look at business, the agency, and the tech centers, we may be handicapping the tech centers without having a unified statewide effort to figure ROI (SD2).

Well, in the next year, there will be a statewide coordinated effort to helping improve our technology system for capturing ROI data. A number of things are going to come from that. A positive through that process is that the schools will have to become more educated in gathering this kind of data. And then from that point, working with the tech center and the industries together we want to make sure that all entities are talking ROI. That statewide initiative will help in gathering this type of information (SD2).

3. The focus group supported this study's findings and indicated a belief in their value.

Item 46. Three employees received promotions and pay raises as a result of the training they received (SD2).

I like number 42. "Without it as a small and new business, we would have a very difficult time equipping ourselves and getting started…. That kind of says it all (BIS2).

The funds that are put into existing industry, I'm glad to see the 3.96.

That is important to point out to local folks (BIS1).

I think, before, we were just guessing on return on investment. We did not

have any real data that we could put our arms around; and we definitely

did not know what the return on investment percentage was. I think now

we've got data. The sample size is small, and I hope we can look at ways

to improve the sample size; and, hopefully, we will be able to continue

this and build it into our database and we will have it (SD3).

We're in the process of trying to do some economic impact information

statewide…. Some of this information would be valuable, I think, for a

researcher for look at initially. Would you mind that being shared (SD1)?

I was about to request another ¾ of a million for existing industry over the

next couple of years. You're helping here (SD1).

This ought to help (SD3).

I do agree with the findings. I think this program is a way for us to be

more proactive with companies using the program as an incentive to help

promote more and better training (SD2).

I felt all along that the program was good and beneficial and a way for us

to get in the door to help train and tool up and retrain…. It is reaffirming

what I felt. Certainly I agree with the findings and, hopefully, this is some

data that we can build on for the future (BIS1).

4.   The focus group recognized both benefits and barriers to the

implementation of ROI. Many of the ones they mentioned mirrored what has been

reported in the ROI literature. One important barrier recognized by the focus group

stakeholders was that the business would need to be convinced of the value of ROI before it could be successfully implemented.

> It will entail our businesses making a paradigm shift so that this is not seen as a negative. We need to position this in the right way that will allow these companies to be receptive to this change and be receptive to that (SD2).

> If you took any of our business owners and said to them, "I can show you a way that you can invest 1dollar and you will receive 4 dollars return on that investment," they would take the time to come to a meeting. At this time they just do not see the importance of it (BIS2).

Another barrier pointed out by the focus group was concern that fair, accurate, and uniform ROI data might not be collected if it was done by outside sources.

> I think the only disadvantage to implementing ROI is if we get in a hurry and we contract with a source that is not providing valid, factual data…(SD3).

> If you cannot believe the numbers, nothing else will matter (BIS2).

> And it needs to be holistic. This type of ROI information should be holistic for our system, not just the Existing Industry Program (SD2).

Another barrier to ROI implementation stressed by the focus group – and frequently discussed in the ROI literature – was lack of ROI knowledge, skills, and well-developed, uniform measurement systems.

> …that's some pretty deep stuff when you get into it. I don't think a lot of our smaller companies have somebody that understands how to really calculate ROI. They only look at the bottom line. Are they getting

trained? Are they increasing profits? That's about as close as they come

right now to any kind of effort to calculate ROI (BIS1).

Something that we've talked about is we are doing quite a bit across the

state on business excellence and Black Belt, green belts, statistical tools

for gathering data on return on investment. We would not be able to do it

on every project, but we would be able to pull a sample to where we can

go in and, if they say they want XYZ training, we could benchmark where

they are right now, do the training, and then, like you say, come back in a

few months and measure again and then maybe a year later. We have

talked about that in the past but right now we do not have the people to do

it (SD3).

We are not going to get all of you guys to agree on how to measure ROI,

and we are going to continue to flounder until we present the way it is

going to be measured (SD1).

A process or an equation needs to be developed so that we are comparing

apples to apples (BIS1).

So, are you saying that one of the barriers is that we are not all figuring

ROI in the same way now (RES)?

Yes (SD3).

Yes (BIS1).

We need to formulize that mechanism so that we can remove that barrier

that exists because the schools have a 101 different ways of doing things

and they are not always the same. We see that that is a problem.

Industry's barrier to this is that they probably do not have enough

education in ROI to understand what ROI is and why it might be

important to them. A big barrier is that the schools, businesses, and

people here at the agency just do not have a good handle on what should

really be considered when looking at ROI. All of these folks must be able

to reach a level of understanding on this subject that shows that they "get

it" (SD2).

This lack of ROI skills and uniform measurement system discussed by the focus

group was consistent with the researcher's findings that adequate data for calculating

fully-loaded ROI costs and benefits were not currently available in the CareerTech

system.

Finally, the focus group acknowledged the "fear" barrier that is very often

presented in the ROI literature.

That has been a barrier across the board that handicaps us from the gate

because we do not know what the end result will be. Some people will not

be willing to do it because they may not like what the end result will look

like (SD2).

Amen (SD3)!!

There will be resistance because people do not want to give up

information because they are afraid that it might affect them personally

depending upon the outcome (SD2).

In addition to barriers to ROI, the focus group also recognized several potential

advantages or benefits, many of which are prominent in the literature.

[ROI] will give you a clear picture of profits versus losses of your training

dollars in more tangible terms (SD3).

That is something that everybody understands, dollars and cents (BIS2).
And to have this kind of information when you are speaking to the
legislature about funding is invaluable (SD2).

…. that's how we can approach either TIP or existing industry; we can
show them a return from their tax monies as well. We can equate it back
to the fact that they paid X amount, and they get a return on investment on
the taxes they paid (SD2).

I see it as an opportunity to receive funding to help train people, but it is
also a weaning process that, hopefully, serves as a seed to help companies
understand that as they grow they will have come up with funding to help
with their training needs (SD2).

5.   Overall, the stakeholders in the focus group were supportive of this study
and its findings. They were also supportive of the ROI concept and the importance of its
role in assessment of the Existing Industry Training Program, and indicated a willingness
to pursue its implementation further.

It is interesting that a lot of small business account for 50 percent of the
population, and 84 percent of your sample. [The ROI] speaks to the value
that this program adds to small business (SD2).

The biggest value that I see ROI making, which is not such a new concept,
is thinking about always equating value as in the "proof's in the pudding."
Here is the program, so there it is a given that good things will come from
it, whereas ROI is a way to take a pulse check and see if a program is truly
doing what it designed to do. If it is not adding value, then we need to
probably get rid of it-more from findings like this that shows the ROI of a

program versus just throwing dollars at a new program, which is kind of what we have done in the past. If a program is not adding value, we need to be re-aligning our focus (SD2).

I am impressed. I think that we are right on with this. I think that as we begin going down this path, our knowledge will increase and that will yield more pertinent data, and it will help to increase our relationship with business in Oklahoma.   The comments that we have received serve as an affirmation of the system. That relationship is so key to being successful (SD2).

It will yield a better product in the long run (SD3).

CHAPTER V

CONCLUSIONS, RECOMMENDATIONS, AND SUMMARY

Summary of Study

The purpose of this study was to identify and measure the economic impact and return on investment of the CareerTech Existing Industry Training Program. In addition, the level of customer satisfaction with the program was also assessed and described. Results of this study may offer more insight for stakeholders in the program as they make decisions concerning their participation in this program. Also, it may serve school administrators as they manage the program, and legislators as they make decisions concerning the continued funding of this particular training program.

The population for this study was 552 different Oklahoma businesses that had participated in the Existing Industry Training Program during the years 2000 – 2004. The study was originally intended to be a census study based on participation of all 552 of these businesses. However, due to several unexpected barriers, the actual participation rate was much lower. In fact, the three different companies that reside within the researcher's district failed to return questionnaires. The actual sample was 59 Oklahoma businesses that completed and returned survey questionnaires. This represented a return rate of 10.68% of the population, which represented a limitation of the study and raised caution about generalizing the findings.

The responding Oklahoma businesses were asked to rate their feelings concerning their level of satisfaction with five different aspects of the Existing Industry Training program. They were also asked to provide wage data for employees who were hired as a

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result of the Existing Industry Training Program as well as existing employees who had

taken part in the program. Additionally, each Oklahoma business was asked to provide

the following demographic data: location of business by county, size of community in

which the business was located, number of employees, yearly gross sales, and their

SIC/NAICS code. Some data on the costs of the Existing Industry Training Program

were obtained from the archives of the Oklahoma Department of Career and Technology

Education (ODCTE). These data were used collectively to analyze and describe the

economic impact, return on investment (ROI), and customer satisfaction levels of the

program.

The research questions addressed in this study included the following:

1. What is the economic impact and return on investment (ROI) of training

completed within the context of the Existing Industry Training program by Oklahoma

career technology centers for selected Oklahoma businesses?

2. What is the general level of customer satisfaction with training conducted in

the context of the Existing Industry Training program by Oklahoma career technology

centers for selected Oklahoma businesses?

3. Are there differences in the level of customer satisfaction with training

conducted in the context of the Existing Industry Training program by Oklahoma career

technology centers for selected Oklahoma businesses based on size of community in

which the business resides, number of individuals employed by the business, or annual

gross sales of the business?

4. How do primary stakeholders in the Existing Industry Training program

perceive the findings of this study and potential impacts on the program?

Research question one was addressed using descriptive analysis of data provided by the ODCTE and the participating businesses, and the Phillips standard ROI calculation formula. Question number two and three were addressed with descriptive statistics and cross-tabulations. Question four was addressed through qualitative analysis of the input of a focus group of relevant stakeholders.

The study's review of literature included the following areas of interest: Kirkpatrick's Levels of Evaluation Model and ROI, Intangibles of Return on Investment (ROI), Barriers to ROI, ROI Procedures and Calculations, Value and Benefits of ROI, Customer Satisfaction, and use of Focus Groups.

Conclusions

Economic Impact

For the sample in this study the Existing Industry Training program had a positive economic impact on those local businesses that took part in the training program.

Economic impact was assessed in terms of employment, wages, and financial benefits reported by participating Oklahoma businesses. The average wage of new employees in the sample at the time of participating in a Existing Industry Training Program was $7.53 per hour. The average wage as of today for these same employees is $18.19. The data revealed that the sample of 59 businesses realized in monies saved or gained a total of $2,035,711.00.

Return on Investment

The Existing Industry Training Program had a positive return on investment for those Oklahoma businesses represented in the sample. For each

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dollar spent by the ODCTE on the Existing Industry Training program, Oklahoma businesses (n=59) realized a return on this investment of $3.96 on average. This represents an ROI of nearly 400%.

These findings were based on a very limited calculation using data that included overall costs provided by ODCTE and return on investment data reported by businesses. However, it is at least an initial indication of the positive effect the program has had on the involved Oklahoma businesses. The implication of this finding is that the ROI for the entire population of Oklahoma businesses that have participated in the Existing Industry Training Program may have been positive, and this program may be a good starting point for ROI analysis in the CareerTech system.

Customer Satisfaction

The Existing Industry Training program is seen by the Oklahoma businesses in this study as being a positive program that provides needed training at a very high level of satisfaction to Oklahoma businesses. The grand mean across the five satisfaction questions equaled 4.72 on a 5-point Likert scale.

The data revealed that the most positive aspects of the Existing Industry Training Program, from a customer satisfaction perspective, fell in two areas. These included the following: Local technology center staff assistance during an Existing Industry Training Program and timeliness of response by local technology center staff upon initial request for training. The mean response for the technology center staff assistance question was 4.75. The mean response for the timeliness question was 4.76. Customer satisfaction levels were not related to the size of community of businesses, number of employees, or gross business

sales. Rather, the satisfaction level was relatively consistent across those variables on all five measured aspects of customer satisfaction.

<u>Barriers to Return on Investment</u>

The limited size of the sample (n=59) versus the size of the population for the study (N=552) indicates to the researcher that there exists barriers and, more generally, a lack of understanding of the positive impact that ROI data can have on Oklahoma businesses.

The difficulties encountered in obtaining participation in this study suggest that barriers exist at this time to the implementation of ROI assessment in industry programs in the ODCTE. There is also a general lack of understanding of the positive impact that ROI data can have on Oklahoma businesses. The researcher encountered problems in the return of questionnaire surveys, receiving only 59 out of an original mailing of 552. The literature indicated that fear and lack of understanding of the ROI process may lead to resistance to implementing ROI initiatives. This same fear may have led to the limited number of returned questionnaire surveys. Phillips (1997) discussed the fact that many businesses may fear that a negative ROI might have negative and lasting effects on employees and management alike. The lack of understanding concerning the benefits of a properly completed ROI study may have played a significant role in the limited amount of data gathered by ODCTE in this particular area. The understanding simply does not exist at this time to develop the kinds of techniques needed to acquire the proper data to adequately reveal the ROI data of the Existing Industry Training Program at this time. The focus group touched on this subject. One of the stakeholders responded "….I think that when you look at

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business, the agency, and the tech centers, we may be handicapping the tech centers without having a unified statewide effort to figure ROI….."

Low Level of Understanding of ROI

There is a low level of understanding by technology center BIS staff members as to the positive impact that ROI data can have on Oklahoma businesses and the Oklahoma Department of Career and Technology Education, and a sense that there are currently some barriers to ROI implementation.

The literature indicated that there must be a minimum acceptable level of understanding of ROI and ROI skills to successfully implement an ROI initiative in an organization. Phillips (1997, 2002) indicated that not all programs are good candidates for ROI evaluations, and that programs need to have been in existence for some time prior to implementing an ROI initiative to measure the return on investment. The input from the focus group in this study suggested an awareness by ODCTE stakeholders that the critical levels of understanding and skills to implement ROI are not yet present. A stakeholder in the focus group stated "….a big barrier is that the school, businesses, and people here at the agency just do not have a good handle on what should really be considered when looking at ROI. All of these folks must be able to reach a level of understanding on this subject that shows that they 'get it'…."

ROI and Customer Satisfaction

ROI and Customer Satisfaction Assessment have a future in the CareerTech system. ODCTE has emerging interest and willingness to learn more about ROI and to consider its implementation. ODCTE also has interest in obtaining more data on its customer satisfaction.

As indicated in the focus group responses, ODCTE is and must take an honest look at how it collects data and what it collects data on in the future. "….I think that when you look at business, the agency, and the tech centers, we may be handicapping the tech centers without having a unified statewide effort to figure ROI…."

Recommendations

Based upon the findings of this study, several recommendations are proposed. These recommendations include:

1. A concentrated, widespread effort should be undertaken to expand the understanding and importance of economic impact, return on investment, and customer satisfaction as it relates to the Existing Industry Training Program and those Oklahoma businesses who are involved in the program.

2. A statewide, standardized system of measuring economic impact, return on investment, and customer satisfaction should be developed by the Oklahoma Department of Career and Technology Education to better enable the system as a whole to present a cohesive look at the capabilities of CareerTech as a whole, and the Existing Industry Training Program in particular.

3. Expanded, continued research in this particular area of study should be conducted to better highlight the economic impact, return on investment, and customer satisfaction of the Existing Industry Training Program. This will afford ODCTE personnel and school administrators a good position from which they can ask for additional funding to help with the economic development efforts in the state of Oklahoma. It might also help attract new business growth in Oklahoma when businesses see that the Existing Industry Training Program offers them a leg up over what they might receive in the way of incentives when considering

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whether or not to locate a new business or expand an existing business here in the State of Oklahoma.

4. The present study should be replicated as a full census study to obtain relevant data on all Oklahoma businesses participating in the Existing Industry Training Program. This would help paint a much broader picture of the effects of the program, positive or negative, and allow the decision makers to obtain a well rounded look at the Existing Industry Training Program prior to making decisions concerning funding and other issues that surround this program. Input should be sought from all those business owners who's companies participated in the Existing Industry Training program and other relevant business people from outside the CareerTech system.

Summary

The researcher is confident in the capabilities of the CareerTech system as a whole. It was the hope of the researcher through this research to better highlight these capabilities in general, and in particular those capabilities and possibilities that are made available to Oklahoma businesses through the Existing Industry Training Program. The difficulties encountered in conducting this study and the data from the stakeholder focus group make it obvious that the system as a whole still lacks the needed motivation and skills to gather and measure the required data to show all who are interested how the CareerTech system helps to improve Oklahoma businesses' bottom line through a variety of programs including the Existing Industry Training Program. This will require a paradigm shift within the system to place initiatives such as ROI at the forefront of the thought processes of all those who are involved in training in general and the Existing Industry

Training program in particular. Limited participation in the study by state BIS directors; lack of adequate, appropriate accounting data by ODCTE; and acknowledged lack of ROI skills by ODCTE staff are all indicators of this situation. The state BIS directors tend be protective of those businesses which they serve. This may have had some impact on the return rate of the questionnaire survey. More training in the area of ROI is needed not only for the ODCTE BIS staff but also for BIS directors throughout the state. This will help to promote ROI and the measuring of ROI for training programs conducted in the State of Oklahoma by ODCTE and technology centers. It may be necessary for technology centers to begin to conduct ROI training for those Oklahoma businesses that they serve thereby helping to raise awareness to the importance of accountability and the measuring of the effectiveness of training. Further research is needed concerning the differences between urban and rural Oklahoma businesses who participated in this study and who participate in the Existing Industry program. This research should try and ascertain why the response rate from rural businesses was much higher than that of their urban counterparts.

Although the number of those Oklahoma businesses who responded as a part of the study was small, those who did respond, for the most part, responded positively to their particular experiences in the Existing Industry Training Program. They also claimed a solid ROI for the program in terms of returned financial benefits to their companies. These two findings, coupled with the interest and willingness displayed by the ODCTE staff, suggest that conditions are favorable for the beginning of successful implementation of comprehensive customer satisfaction and ROI assessment of the agency's BIS programs. This

implementation has significant potential benefits for the CareerTech system in an

era of public and legislative scrutiny and fiscal accountability.

REFERENCES

Abernathy, D. (1999). Thinking outside the solution box. *Training and Development*, 53
(2), 18-23.

Adelgais, S. (2001). Return on investment – An evaluative framework. Retrieved
January 20, 2005 from: http://coe.sdsu.edu/eet/Articles/roi/

American Society for Training & Development (2002). ROI of human capital. Retrieved
January 25, 2005, from:

http://search.epnet.com.argo.library.okstate.edu/login.aspx?direct=true&db=afh&
an=7732248

Bahlis, J. (2004). Where training resources should be allocated. *ROI network news,
Summer 2004*. Available online at www.bnhexpertsoft.com. Retrieved March 4,
2005.

Barnard, J. (2002). Return on Training Investment. Retrieved September
10, 2003, from:

www.esi-intl.com/public/publications/112002trainingroi.asp

Barnett, J. M. (2005). Focus group tips for beginners. Retrieved March 27, 2005 from:
http://www-tcall.tamu.edu/orp/orp1.htm

Bassi, L. J., & McMurrer, D.P. (2001). Do firms' investments in training pay off?
Unisys World News, July, pp. 3-4.

Bernthal, P. (1995). Evaluation that goes the distance. *Training and Development*, 49

    (9), 41-45.

Blankenship, S. (2004). Power plant operators need to keep things heated up. *Power*

    Engineering, 108, 9. Retrieved May 17, 2004 from

    http://80-search.epnet.com.argo.library.okstate.edu/direct.asp?an

    =12840760&db=afh

Brauchle, P.E, & Schmidt, K. (2004). Contemporary approaches for assessing outcomes

    on training, education, and HRD programs. *Journal of Industrial Teacher*

    Education, 41 (3), 71-97.

Brown, B.J. (2001). *Return on investment in training*. Stillwater, OK: Edmond Low

    Library. (ERIC Document Reproduction Service No. ED 459359)

Brown, S., & Seidner, C. (1998). *Evaluating corporate training: Models and issues*.

    Boston: Kluwer Academic Publishers.

Cross, J. (2001). A fresh look at ROI. *Learning Circuits*, American Society for Training

    and Development, Retrieved September 28, 2003 from

    www.learningcircuits.org/2001/jan2001/cross.html

Davidore, E. A, & Schroeder, P. A. (1992). Demonstrating ROI of training. *Training*

    and Development, 46, 70-72.

Densford, Lynn (1999). Calculating the bottom line impact of training and development

    efforts. *Employee Benefit News*, 13, 1-4.

Ellis, K. (2004). What's the ROI of ROI? *Training Mag.com*. Retrieved January 29,

    2005 from:

    http://www.trainingmag.com/training/reports_analysis/feature_display.js

    ?vnu_content_id=1000752027

Fagiano, D. (1995). Making training quantifiable. *Supervision*, 56 (16), 12-13.

Fern, E. F. (2001). *Advanced focus group research.* Thousand Oaks: Sage.

Fraenkel, J. R. & Wallen, N. E. (2003). *How to design and evaluate research in education.* New York: McGraw – Hill.

Gay, L. R. & Airasian, P. (2000). *Educational research: Competencies for analysis and application.* Columbus, OH: Merrill Publishing.

Goebert, B. & Rosenthal, H. M. (2002). *Beyond listening: Learning the secret language of focus groups.* New York: John Wiley & Sons, Inc.

Gordon, L., & Richardson, R. (2004). INFOSEC Economics: New approaches to improve your data defenses. *Network Computing.* Retrieved May 22, 2004 from http://www.nwc.com/showitem.jhtml?docid=1506f4

Guba, E. G., & Lincoln, Y. S. (1985). *Effective evaluation*. San Fransisco: Jossey-Bass.

Hall, B. (1997). If you need a million bucks…you gotta know your ROI. Retrieved September 12, 2003, from www.caibt.com/roi3.htm

Hoffman, T. (2002). On line training, E-business integration yield big returns. *Computerworld*, 36, p. 12.

Holloway, A. (2002). I'm down here, guys. *Canadian Business,* 75, 77-81.

Hopkins, W. G. (2000). Quantitative research design. Retrieved March 25, 2005 from: www.sportsci.org/jour/0001/wghdesign.html

Hubbard, E. (20030. By the numbers. *Training and Development*, 57, 42-46.

Johnson, R.B., & Onweugbuzie, A. J. (2004). Mixed methods research: A research paradigm whose time has come. *Educational Researcher, 33* (7), 14-26.

Kirkpatrick, D. L. (1996). Evaluating training programs: The four levels. San Fransisco:

Koch, C. (2002). Why doesn't your ROI add up? You do the math.

    Retrieved September 28, 2003, from www.darwinmag.com/read/030102/roi.htm

Krueger, R. A. (1988). Focus groups: A practical guide for applied research. Newbury

    Park: Sage.

Krueger, R. A. (1993). Successful focus groups: Advancing the state of the art. (D. L.

    Morgan, (Ed.). Newbury Park: Sage.

Kumar, K. (1987). Conducting focus group interviews. Retrieved March 27, 2005 from:

    http://www.usaid.gov/pubs/usaid_eval/ascii/pnaby233.txt

Kurtus, R. (2001). Determining training return-on-investment (ROI). Retrieved January

    29, 2005 from: http://www.school-for-champions.com/training/roi.htm

Lang, M. (2004). A driving force. *Design News*, 60, 72-75.

Leedy, P. D. & Ormrod, J. E. (Eds.). (2001). *Practical research: planning and design*.

    Columbus: Merrill Prentice Hall.

Lundquist, E. (2003). Taking IBM to school. *eWeek*, 20, p 25.

Linkenbach, J. (1995). *Behind the big sky bar: The Montana alcohol server's study*.

    Unpublished doctoral dissertation, Montana State University, Bozeman.

Macarthur, K., Atkinson, C., Chura, H., & Sanders, L. (2004). What's eating Burger

    King. *Advertising Age*, 75, 1-2.

Mendoza, R. (1995). Is there a payoff? *Sales Marketing Management*, 47, 64-71.

Merriam – Webster Online Dictionary (2005-a). Retrieved January 17, 2005 from

    http://www.m-w.com/cgi-

    bin/dictionary?book=Dictionary&va=economic&x=14&y=7

Merriam – Webster Online Dictionary (2005-b). Retrieved January 17, 2005 from

> http://www.m-w.com/cgi-

> bin/dictionary?book=Dictionary&va=impact&x=16&y=13

Merton, R. K., Fiske, M. & Kendall, P. L. (1990). *The focused interview: A manual of*

> *problems and procedures* (2nd ed.). New York: The Free Press.

Miles, M. B., & Huberman, A. M. (1984). *Qualitative data analysis: A sourcebook of*

> *new methods*. Beverly Hills, CA: Sage.

Morgan, D. L. (1988). *Focus groups as qualitative research*. Newbury Park: Sage.

Morgan D. L. & Krueger, R. A. (1993). Successful focus groups: Advancing the state of

> the art. (D. L. Morgan, (Ed.). Newbury Park: Sage.

Mosher, B. (n.d.a). ROI serves many masters. *Element K*. Retrieved June 21, 2004 from

> http://www.elementk.com/training_advice/htm/04-03-ROI.asp

Mosher, B. (n.d.b) ROI or ROE: What are we really measuring? *Element K*. Retrieved

> January 30, 2005, from:

> http://www.elementk.com/training_advice/htm/04-02-roiorroe.asp

O'Brien, P., & Manross, G. (2002). Building Customer Loyalty. *Parks and Recreation*,

> 37, 50 – 53.

Oklahoma Department of Career and Technology Education (2000). Technology center

> instructions for providing enrollment and program data. Stillwater, OK: ODCTE

> Press.

Oklahoma Department of Career and Technology Education (2005). Retrieved January

> 16, 2005, from

> http://www.okcareertech.org/measuringup/SysOverview/DeliverySys/DeliverySy

> s.html

Ozanian, M. K. (2004). George Steinbrenner, Meet Warren Buffett. *Forbes*, 173, 56.

Parry, S. B. (1996). Measuring training's ROI. *Training and*

    Development, 50 (5), 72-77.

Pescuric, A. & Byham, W. C. (1996). The new look of behavior modeling. *Training &*

    Development, 50, 24 – 31.

Phillips, J. (Ed.) (1994). *In action: Measuring return on investment*. (Vol. I).

    Alexandria, VA: American Society for Training and Development.

Phillips, J. J. (1996a). How much is the training worth? *Training & Development*, 50

    (4), 20 – 25.

Phillips, J. J. (1996b). Was it the training? *Training & Development*, 50, 28 – 33.

Phillips, J. J. (1996c). The search for best practices. *Training and Development*, 50 (2),

    42-47.

Phillips, J. J. (1997c). *Return on investment in training and performance*

    improvement programs. Houston: Gulf Publishing Company.

Phillips, P. (2002). *The bottom line on ROI: Basics, benefits, & barriers*

    to measuring training & performance improvement. Atlanta: CEP Press.

Presley, L. E. (1995*). Characteristics of high performing, post*

    secondary, educational institutions conducting workplace training for small

    to medium sized businesses. Unpublished doctoral dissertation, Oklahoma

    State University, Stillwater.

Purdum, T. (2003). Survival of the fittest. Industry Week, 252, 22-26.

Rummler, G. A. & Brache, A. P. (1997*). Improving performance: How to manage the*

    white space on the organizational chart. San Francisco: Jossey – Bass.

Schensul, J. J., LeCompte, M. D., Nastasi, B. K., & Borgatti, S. P. (1999). Enhanced

ethnographic methods: Audiovisual techniques, focused group interviews, and

elicitation techniques. Walnut Creek: Alta Mira.

Setaro, J. (1999). E-learning I.O. *Learning Circuits*, June, 2001.

Shavelson, R. J. (1996). *Statistical reasoning for the behavioral sciences*. Boston:

Pearson Custom Publishing.

Shelton, S., & Alliger, G. (1993). Who's afraid of level 4 evaluation? *Training and

Development*, 47 (6), 43-46.

Shepherd, C. (1999). Assessing the ROI of training. Retrieved September

28, 2003, from www.fastrak-onsulting.co.uk/tactix/features/tngroi/tngroi.html

Sorenson, S. M. (2002). Training for the long run: a cost-benefit perspective.

Engineered Systems, 19, 34.

Staples, S. (2003). Cult of accountability: Does employee training pay off? Accounting

techniques and science-inspired metrics evaluate return on investment. *Canadian

Business*, 76, 123 – 124.

Sterling Institute (1998-2003). Retrieved September 25, 2003, from

www.sterlinginstitute.com/co/tl/roi/siroil.htm

Tian, O. (2001). Enhancing the bottom line: Manpower training and the

return on investment. Retrieved September 13, 2003, from

www.refresher.com/!trainingroi.html

Vogelsong, H., Graefe, A., & Estes, C. (2001). Economic impact analysis: A look at

useful methods. Retrieved January 24, 2005 from:

http://search.epnet.com.argo.library.okstate.edu/login.aspx?direct=true&db=afh&

an=4235811

Williams, J. C. (n.d.). Return on investment analysis. Retrieved September 25, 2003,

from www.gsu.edu/~mstswh/courses/it7000/papers/returnon.htm

APPENDICES

APPENDIX A

SURVEY QUESTIONNAIRE

Oklahoma Department of Career and Technology Education Existing Industry Training Program

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Customer Satisfaction/Return on Investment /Economic Impact Survey

---

Please rate your feelings about the following aspects of the Existing Industry Training program. Circle the number that represents your feelings or fill in the blank to answer questions regarding the program.

Rating Scale

Very Satisfied	Satisfied	No Opinion	Dissatisfied	Very Dissatisfied

---

1. The local technology center staff assistance to my business during the Existing Industry Training program process.

    5   4   3   2   1

2. Timeliness of response by local technology center staff upon initial request for training.

    5   4   3   2   1

3. Communication between your business and the local technology center staff during the Existing Industry Training program.

    5   4   3   2   1

4. Handling of problems (if applicable) by the local technology center staff that arose during the Existing Industry Training program.

    5   4   3   2   1

5. Please rate your overall experiences with the Existing Industry Training program.

    5   4   3   2   1

6. Please tell us what your business likes most about the Existing Industry Training Program.

    _____
    _____
    _____
    _____

7.   Please tell us what your business likes least about the Existing Industry
        Training program.

        _____

        _____

        _____

        _____

8.   Please tell us what your business would like to see changed about the
        Existing Industry Training program.

        _____

        _____

        _____

        _____

9.   Please describe or explain the results or effects of the training received through
        the Existing Industry Training program on your business.

        _____

        _____

        _____

        _____

        _____

        _____

        _____

        _____

        _____

**In the past five years, your business has been involved in _____ Existing
Industry training projects involving _____ employees. The topics of this training
have been:**

a.

b.

c.

d.

e.

f.

g.

h.

i.

Please answer the following questions based on the information from the previous page:

10.   Number of new jobs created as a result of Existing Industry training program:_____

11.   Average wage (per hour) for these new employees at the time they received training as part of the Existing Industry training program:_____

12.   Number of these employees still employed as of today:_____

13.   Average wage (per hour) of these employees as of today: _____

14.   Average wage (per hour) of existing employees at the time they received training as part of the Existing Industry training program:_____

15.   Number of existing employees still employed today:_____

16.   Average wage (per hour) of existing employees as of today:_____

17.   Amount of monies saved, realized, and/or gained (increased output, improved efficiency, improved profits, fewer accidents, less down time, etc.) as a result of the Existing Industry training program over the five year period 2000 – 2004):_____

18.   Other monetary effects (positive or negative) of having been involved in training as part of the Existing Industry training program:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Please provide the following demographic data concerning your business.

1. Location of business by county or counties:_____

2. Size of community in which your business is located:

        Rural_____   Fewer than 2,000_____

        2,000 – 4,999_____   5,000 – 9,999 _____

        10,000 – 14,999_____   15,000 – 19,999 _____

        20,000 – 49,999 _____   50,000 – 99,999 _____

        100,000 – 499,999 _____   500,000 and Up _____

3. Number of employees:

        Less than 10_____   11 - 100_____

        101 – 250_____   251 – 500_____

        501 – 1000_____   1001 – 2000_____

        More than 2000_____

4. Gross sales (Previous Year):

        $0 - $100,000_____ $101,000 - $249,000_____

        $250,000 - $499,999_____ $500,000 - $999,999 _____

        $1,000,000 - $4,999,999_____ $5,000,000 - $9,999,999 _____

        Over $10,000,000 _____

5. Please indicate your company's SIC/NAICS code:_____

APPENDIX B

RAW DATA EXAMPLE – ODCTE

		Pioneer Tech. Center								$31,144.00	
934	09/13/03		Cooper Compression	45	CNC	10	$6,800.00		$0.00	0%	$24,344.00	32
953	10/04/03		Lindsey Manufacturing	46		18	$2,900.00		$2,900.00	100%	$21,444.00	32
987	01/04/04		Conoco Phillips	698	204 A OSHA	20	$12,000.00		$12,000.00	100%	$9,444.00	32
1003	02/09/04		Tonkawa Foundry	30	TPM	20	$3,300.00		$3,300.00	100%	$6,144.00	32
1004	02/09/04		Tyson Foods	530	HACPP	20	$2,930.00		$2,964.00	101%	$3,214.00	32
1046	05/11/04		Mertz	120	CPI	16		$1,400.00	$1,229.40	88%		

APPENDIX C

FOCUS GROUP TRANSCRIPT

RES: A little background. I decided to do this project on economic impact, customer satisfaction, and return on investment of the Existing Industry Training program so I asked State Department personnel to get me all the data on those years that we have had this program. 2000-2004, five years. And this is all the information I used to develop this research plus a whole lot of other stuff for these years. We put together a questionnaire here that I sent out and I actually sent out 552 of those. I spent around $1,400 in postage. I received back 59. So is a little over 10% return on my mailing. We sent a questionnaire out to every training contract that occurred during this time frame.

BIS1: That's over the life of the program?

RES: Yes, over the life of the program, 2000-2004, 5 years.

At this point, the researcher passed out copies of the focus group questions and allowed the participants a few minutes to look over the questions before proceeding.

SD1: Is this the only group that you are going address concerning this topic.

RES: Yes

SD3: There was supposed to be 2 industry folks here today.

RES: Yes, that is the reason that the questions are written as they are.

SD1: OK. I was just trying to make sense of the questions.

At this point, the researcher passed out a rough draft of Chapter 3 for the participants to look at before proceeding.

RES: Look on page 2 of Chapter 3, there are four research questions there and that is what the study has been based on. Any questions or comments about the research questions? (No verbal response). If you look over on

page 5, it talks about the population being 552, and then if you look at

page 6 through page 14, it tells you by each technology center every

business that we had a training contract with.

SD1:   It would be interesting to know if the response had anything to do with the

relationship and rapport between the technology center and the company.

RES: Yes it would

SD1:   It is interesting that some of these that serve a large number, there are no

responses from. If the shoe fits, wear it.

RES: I did not get any responses from my three companies.

SD1:   I am going to use Tulsa as an example. There's 39 listed and no

responses.

RES: The two I delivered mine too; I know they got them; I called them several

times, but I never received them back. And, I work with these folks all the

time.

BIS1: That really curious on your return.

RES: I know. If you look on page 16, it tells you how many we sent out and

how many we received back by technology center, and of course at the

bottom that we sent out 552 and got back 59.

SD3:   I know that you had hoped for more, but I think on mail outs its way

above the national average.

SD1:   Oh, yeah, its like 2%

RES: Yes, its like a little over 10% response rate

BIS1: Northwest almost had a 50% return rate

RES: Yes, so did Southern

SD1: Well, I got side tracked there, but I just think that would be interesting.

SD2: Uh, did you send this out as from (Researchers tech center)?

RES: No, it was all sent out from me personally

SD2: So it was all from you, OK

SD3: Then almost everyone of them called me and wanted to know what was going on

SD2: I know

RES: I sent a letter. Some of them sent them back here.

BIS1: In our case, you asked the industrial coordinator to deliver them in person

RES: Yes, we asked people to either deliver them in person or we included postage to mail it and follow up with a phone call to tell them what it was about and what we wanted them to do.

SD3: Yeah, I think the first one I looked at was in a pretty good envelope, and there was postage in there and there was a thing to where they could do it and return it back to you

RES: It should have been all inclusive

SD3: So all they had to do was just read it

RES: Please look at page 17 and it shows the funds that were spent by year. That's for the population. And on 18, it shows what was spent on the sample. On the sample. So the State Department spent on the Existing Industry program $404, 508.27 for those training contracts that represents our sample.

SD1: Hmm

BIS1: What page was that?

RES: Page 18.

BIS1: That's amazing

SD3: $400,000; is that about right?

SD1:   So your smaller utilizers, dollar wise, are the ones that responded

RES: Look on page 19 and look at the urban/rural difference

RES: The number of businesses in the population was 62% rural and in the sample was 93% rural.

SD1:   How did you define rural?

RES: Uh, I defined urban as Tulsa, Moore-Norman, Francis Tuttle, Metro Tech, and Mid-Dale. I considered those to be urban. The rest of them I considered them to be rural. That how I defined them

SD1:   And really, that a, if you take individual years there would be quite a variation, because weren't we at 80% rural at one point in time for Existing industry?

RES: That was just me call as a researcher, basically

SD1:   Sure, sure. Because it was almost completely opposite of TIP when you look at these numbers.

RES: Then on 19, if you look at the bottom and the top of 20, that is how I defined company size, 0-100 is small, 101-300 medium, and 301+ was large. And the table on 20 gives you break down of companies based on the size of business.

SD2:   It is interesting that a lot of small business account for 50% of the population, and 84% of your sample. It speaks to the value that this program adds to small business.

RES: This program is a life saver for many of these small businesses.

RES: OK

SD1:   Can I side track us again just a little bit?

RES: Sure

SD1:   Were in the process of trying to do some economic impact information statewide. Actually be contracting with OSU to do that, and this time we will be including BIS and both your guys are probably aware that we have tried to do that before, however the exact methodology couldn't be agreed upon by BIS people across the state. Uh, so were gonna direct what that looks like to kinda get us off high center. Some of this information would be valuable I think for a researcher for look at initially. Would you mind that being shared?

RES: No, not at all. That fine. That's why I did this study.

SD1:   OK

RES: And its not done yet, but it should be done before the end of Juen

SD1:   Sure, sure. We too have to develop questionnaires.

At this time, the researcher passed out the rough draft of Chapter 4 for the participants to look at prior to proceeding.

RES: Chapter 4 is not complete yet. Look on page 2 first. Table 7 is basically the responses that I got on the questionnaire which are on page 3 of your questionnaire. Those are the responses from the sample that I got that includes new employees hired, etc.

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SD1: So these are new jobs created, not necessarily intended at the time the training was implemented.

RES: Well, question 10 was worded as new jobs created as a result of the exisitn industry training program.

SD1: So it's a result of the training. If we knew the jobs were gonna be created before we went in to do the training, then we might have looked at TIP. Because if they qualified for TIP, they wouldn't have used existing industry.

SD2: Or you could look at it as, they didn't realize or company wasn't aware of TIP, they hired the people, or their there, existing industry upgraded their skill to fill that slot. TIP is out of the question.

SD1: I'm looking at it as an unexpected result.

SD3: So am I

RES: They had a need, so they hired them to fill that need when they knew they could go this route to get them trained.

SD1: OK

RES: Make sense?

BIS1: The difference between the average wage per hour for new employee, $7.53 and the average wage for existing employee as today, $18.00. Why is there that large of difference?

RES: I am not sure. That was simply what was reported. You have to go back and understand that we only had a sample of 59, so we may have had a couple of spikes in the wages that kind of skewed the average.

SD3: It is also out over 5 years

RES: Right, so

SD1: Ok, I am still struggling here, ok?

RES: Ok

SD1: We know we had 162 new hires, do we know whether or not we went in to a company, we did training, we moved out, and because of increased productivity or whatever, these people were then hired? Or, are these people, they were hired and then they were then put into training.

RES: I think that is a better statement. I can't assume that because I don't know for sure

SD1: Ok, so its not an unexpected result of the existing industry training. The existing industry training did not lead to company expansion in the area of new jobs.

RES: I think you can based on the way that question 10 is worded, so, let say you need machinist. I can't afford to get them trained, but I got a program that can get them trained if I can afford to hire them.

SD2: Or you could look at it, irregardless of initiative, the demand of that company who hired new employees exists. TIP wasn't what helped them to add new slots. They have added them. As I read this, the existing industry initiative helped them bring those employees up to speed to help them become productive.

RES: Well, they got them productive faster.

SD1: I think that there is more than one way to look at it.

SD3: If you look at what took place at Shackley and the existing industry training that they did down there, they actually ended up bringing it in

from California, and that was a 100 jobs. I don't know that reported out in here, I didn't look at that, they knew they were going to expand. California lost and we won. Ok, another situation, if a company, say their product is cycled and they are down, they wouldn't be eligible for TIP if they were below their baseline, even though they are hiring new people, they worked with the schools actually put the people on the payroll and then sent these people to the existing industry training. So, we were actually training people that were employed. But it did create new jobs.

SD1: OK

RES: Look at the second column, next to the last figure, amount of money realized, saved or gained as a result of the existing industry training program. $2, 035,711.00. That came directly off of the responses to the surveys.

SD1: That's with the $400,000 investment

RES: That's what I am getting at. So, if you go to the next page, page 3, look down there about 2/3 of the way, take Phillips ROI formula and apply that, for the sample of 59 that we received, you run the formula and you get a ROI of 396%, so, for every dollar we invested in the sample through the existing industry training program, we got $3.96 back in value. The thing we don't know is things such as the cost to the companies for the employees while they went to training and were still being paid. This is just saying, for the monies that the State Department invested, and based on the monies that the companies told us were saved, gained and/or realized, that's what the ROI calculation spit out.

SD1: I was about to request another ¾ of a million for existing industry over the next couple of years. Your helping here.

SD3: This ought to help

RES: The deal is, again we are only looking at 59, not 552.

SD1: OK

BIS1: Have we ever had any estimates as to what that would be?

SD1: Not on existing industry. We have done some on TIP. If you look at Tulsa and Moore Norman, they have done some things on some BIS type training but not; those haven't been developed like they should have been developed.

SD1: When we do it we are going to arrive at the numbers the same way you did. The numbers have to be supplied by the company.

SD2: But the other thing, I think one of the things that will help us to improve, if we arrive at a tool that allowed us to evaluate the success of the dollars and the success of how it was implemented at the company, and we did that by project, there could probably be an equation of the dollars going up based on today's information, uhm, rather than going back 5 years; we can show it more directly instead of trying to remember back over a span of time.

RES: If you look at it in a linear mode, the result expand tremendously.

SD1: Yeah, because you get a cumulative effect. Sure, this lead to this, and this and this; its kind of like running backwards through a funnel.

SD3: I got a phone call this morning where we invested a little over $21,000 and the school is going to wind up selling around $102,000 in training, and the

time they take their real expenses out, they will realize around $40,0000 in

real profit, because of the existing industry program. We developed 6

programs, specialized training sessions for this company and they are

going to buy $102,000 in training.

RES: The whole issue is making sure you ask the right questions when

developing a realistic tool to measure ROI

SD1: I think that it has to come from here (State Department)

RES: It does

SD1: We are not going to get all of you guys to agree on how to measure ROI,

and we are going to continue to flounder until we present the way it is

going to be measured.

SD2: And to have this kind of information when you are speaking to the

legislature about funding is invaluable.

RES: Ok, look at page 4, research question number 2, general satisfaction with

existing industry training program; there were 5 questions on this

questionnaire, the front page of it, the first one was; we are asking to have

them rate their level of satisfaction with 5 being very satisfied to 1 being

very dissatisfied. Look on the bottom of page 4, the mean rating on

question 1 was a 4.72. So, they are pretty satisfied. Ok? Same thing with

question number 2.

At this point, SD1 was called out of the focus group meeting. The rest of the

group continued on with the meeting.

RES: The first 5 questions, the mean of all those questions indicates the people were either satisfied or they were very satisfied. Somewhere in between there.

SD3: We got a little room to improve

RES: Sure; questions about that or comments. If you look at table 9 on page 5, question 6 through 10, please tell us about what you like, dislike, what you want to change, etc. I took all the responses in the Appendix and then I reduced all of these responses into the 4 categories found on page 5. I tried to rate each response as either positive or negative. So out of 174 responses that I boiled down into these categories, there were 144 that were positive, and 30 that were negative. I can tell you that most of the negatives were "we need more money in the program".

SD2: Negative comment not meaning relating to quality.

RES: I chose as a researcher to handle those, from a program standpoint, as a negative comment.

SD3: I agree with you that we need more money, but on the other side, we are not spending everything we get right now.

RES: Page 6, table 10, and page 7 tells you the frequency of how the satisfaction came out as compared to community size, number of employees, and gross sales. What we have in the sample is a lot of small companies bringing in a lot of big money.

SD3: I'd like someway in the guidelines as part of that existing industry agreement that says you will complete this so that we can collect data on 100% of the projects.

RES: I think that is do-able

SD2: That goes back to my point of saying per project, based on the agreement, you do an evaluation of the exact dollars.

RES: Because then you can get actual costs of what it cost to send people to training since you are most likely paying them while they are there.

SD3: That will give you a more clear picture of profits versus losses of your training dollars in more tangible terms.

RES: The rest of those tables breaks down the satisfaction level by all the different demographic data. Thing I would tell you is that in the sample we had no 1's (Very Dissatisfied) or 2's (Dissatisfied). There are a few 3's (NO Opinion), mostly 4's (Satisfied), and the majority are 5's (Very Satisfied).

BIS1: Do you get the feeling while we are out there in the field with these companies, do they feel like they are getting something for nothing. Do they feel like they are getting some of their tax dollars back?

BIS2: That's what I think

SD2: I think its how that local staff presents that program to the companies.

BIS1: And unless we just really screw things up, they are going to be pretty happy I would think.

SD2: And that's how we can approach either TIP or existing industry, we can show them a return from their tax moneys as well. We can equate it back to the fact that they paid X amount, and they get a return on investment on the taxes they paid.

SD3:   I have went out and just spot checked some classes. A number of times

when you ask one of the students who is putting on the training and they

respond "well the company sent me over here".   And then I would have to

go back and get with the IC or the instructor; I thought we agreed that we

were going to start the training off with "here's a program that is out of

your tax dollars, its funneled to the schools.

BIS2:   That maybe something that you can add to the agreement also.

At this point, the researcher passed out appendix that contained the answers to the

open-ended questions on the survey. The group looked over the appendix prior to

proceeding.

RES: What you have in front of you is the answers to questions 6,7,8, and 9.

Please take a minute and look through there.

SD2:   It is interesting to me that these answers represent a broad arrangement of

ideas and viewpoints.

RES: If you do not see 59 responses to each question, that means they left it

blank. I put every answer in there verbatim.

SD2:   This is another area I hoped would come out of this. On number 40, it

talks about making our decision easier to buy and upgrade equipment.

The indicators of not only being able to put a dollar figure to it. Its one

thing to do training, but it is also important that they recognize how

important it is to be able to bring in equipment and immediately follow it

up with training.

BIS2:   You will see several times through here the word "flexibility".

SD3:   I saw in there the comment concerning no carryover to the next fiscal year. That's just basically a clarification.

SD2:   Look at number 6 on page 5. Uh, request funds for 1 project requiring other projects to be postponed.

SD2:   34 is a point that may be reflected in local schools making good use of funds. Some schools do not even know where the application is and that may contribute to a delay in a decision being made as to whether or not a project will be funded.

SD3:   I have seen a few where they have kind of been hung up because of multiple campuses and where the BIS director actually has to sign off on it, and then the campus director, and then it goes to the superintendent to sign, and then it goes back to the IC before being mailed to the State Department.

SD2:   The point that SD1 was making about trying to separate TIP and existing industry, existing industry contributing to safety. That is a different pot of money, it may help to contribute to the overall process of getting people trained. It is just another way to help get your foot in the door with many of these companies.

RES: Any other comments concerning open-ended questions 6,7,8, 9.

SD2:   Item 46. Three employees received promotions and pay raises as a result of the training they received.

BIS2: I like number 42. "Without it as a small and new business, we would have a very difficult time equipping ourselves and getting started. Our employees to compete in this business. That kind of says it all.

At this point the focus group looked the formal questions developed for this group meeting. Below are the responses to those questions.

Question number 1.

What does the data reveal to you concerning Return on Investment, Economic Impact and/or Customer Satisfaction concerning the Existing Industry Training Program? Do you agree with the findings, yes or no, and why?

SD3:   I think before,we were just guessing on return on investment. We did not have any real data that we could put our arms around, and we definitely did know what the return on investment percentage was. I think now we've got some data. The sample size is small and I hope we can look at ways to improve the sample size and hopefully we will be able to continue this and build it into our database and we will have it.

SD2:   I said before, it is affirmation that we've talked and we have made the assumption that this program is adding value. What brought us to today is not what will take us forward. The types of things we do need to be looking at not only from a legislative standpoint but also an industry standpoint is find ways of helping them to understand why things like a training budget might be important to consider as a company grows and changes. I see it as an opportunity to receive funding to help train people, but it is also a weaning process that hopefully serves as a seed to help companies understand that as they grow they will have come up with funding to help with their training needs. I do agree with the findings. I think this program is a way for us to be more proactive with companies

using the program as an incentive to help promote more and better training.

BIS1: I felt all along that the program was good and beneficial and a way for us to get in the door to help train and tool up and retrain. One example of that is in Sapulpa at Bennett Steel where they have had to let some people go but they have hired a whole new set of welders with different skill sets to help sustain growth in the company. It is reaffirming what I felt. Certainly I agree with the findings and hopefully this is some data that we can build on for the future.

Question number 2 & 3.

What does the term ROI or Return on Investment mean to you and your organization? Is it a good idea/bad idea? Please relate your relative knowledge of ROI?

SD3: If I set there and look at our agency, in order to have that you have made an investment in something and your selling something and taking all of your cost out of it and you get what's left, that's your return. Ok. At the agency, up until probably a year and a half, two years ago, that about half of us up here felt like our customers was the tech centers. And the tech centers, we don't sell them anything. But until we make the leap, and we are now, to where business and industry or that industry base out there is all of our customers. Now, if we help that customer grow and sell more products, making it's products cheaper, adding more profit to that organization, then there will be more of that ad valorem tax paid into that pot so that when we get our 4% of the education budget, then that budget will go. I think for a long time up here, we were mixed. I think that you

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could have said "who's our customer" and some of them would said the superintendents, some of them the BIS directors, some of them the tech centers, and there would not have been a half a dozen of them that would have said that their customers were business and industry. We are working through that.

SD2: The biggest value that I see ROI making, which is not such a new concept, of thinking about always equating value, as in the proofs in the pudding. Here is the program, so there it is a given that good things will come from it, where as ROI is a way to take a pulse check and see if a program is truly doing what it designed to do. If it is not adding value, then we need to probably get rid of it more from finding like this that show the ROI of a program versus just throwing dollars at a new program which is kind of what we have done in the past. If a program is not adding value, we need to be re-aligning our focus.

BIS1: The process of calculating ROI was discussed at a workshop in Tulsa a year to a year and a half ago, and that's some pretty deep stuff when you get into it. I don't think a lot of our smaller companies have somebody that understands how to really calculate ROI. They only look at the bottom line. Are they getting trained, are they increasing profits, that's about as close as they come right now to any kind of effort to calculate ROI. At our school, for the full time programs, if the kids don't get jobs then that is not a good investment. I think that ROI means different things to different people. The funds that are put into existing industry, I'm glad to see the 3.96. That is important to point out to local folks.

BIS2:   That is something that everybody understand, dollars and cents.

SD2:   Sure

SD3:   Sure

SD2:   And that's a direct correlation of a mind set. We are going through a culture change both here in the agency and out in company's from a standpoint of we think programs are pretty good but we cannot say for a fact what kind of return we have received on a given project.

RES: So, then is it a fair statement to say then that people don't know how to arrive at the numbers such as these that are generated out of Phillips formula?

SD3:   I was going to give you an example of 4 or 5 companies that I work with. If you look at ROI and the bottom line of these companies, they thought they were all making money at a fast pace and now, none of them are in business. They all went bankrupt. They did not know what their return on investment was and they paid for it by losing their companies. Now if you some of the latest books, your accounting people did know how to figure return on investment, but they could not get management to listen to their findings. They did not call it that earlier, but that is what it has always been.

RES: So, they weren't accounting for all the costs.

SD2:   It is one thing to say that it is adding almost $4.00 to every dollar that you invest. Its another thing to show that there may be an opportunity to really add value to a process. We can say that everything we do meets a demand but it may not always look pretty from a standpoint of dollars.

RES: Is it a fair statement to say that you cannot always put everything into

dollars and cents?

ALL: Yes

RES: But it may still have added value.

Question number 4.

What barriers do you see to implementing a coordinated ROI initiative in our

organization?

SD3: I personally believe that you are going to have to use something to bring

out this information. I fully believe that business and industry is our

customers. We have got to use something that business agrees is a factual

and proven way to figure return on investment. Then the rest of us will

have to put our data into that and be satisfied with that until something

better comes along.

BIS1: A process or an equation needs to be developed so that we are comparing

apples to apples.

RES: So, are you saying that one of the barriers is that we are not all figuring

ROI in the same way now?

SD3: Yes

BIS1: Yes

SD2: I think that when you look at business, the agency, and the tech centers,

we may be handicapping the tech centers without having a unified

statewide effort to figure ROI. We need to formulize that mechanism so

that we can remove that barrier that exists because the schools have a 101

different ways of doing things and they are not always the same. We see

that that is a problem. Industries barrier to this is that they probably do not

have enough education in ROI to understand what ROI is and why it

might be important to them. A big barrier is that the school, businesses,

and people here at the agency just do not have a good handle on what

should really be considered when looking that ROI. All of these folks

must be able to reach a level of understanding on this subject that shows

that they "get it".

BIS1:   I think that we need to have a situation to where the IC has told the

company that when the training is completed a survey is going to be

conducted and that we are going to ask certain questions and then we will

come back in 6 months and follow up with similar questions. That way,

everybody will be expecting that and that will help eliminate the problem

of a small sample. Our sample then should be 100% and the answering of

the survey will be a condition of receiving existing industry funds.

BIS2:   Our sample will then become our entire population.

SD3:   Something that we've talked about is we are doing quite a bit across the

state on business excellence and Black Belt, green belts, statistical tools

for gathering data on return on investment. We would not be able to do it

on every project, but we would be able to pull a sample to where we can

go in and if they say they want XYZ training, we could benchmark where

they are right now, do the training, and then, like you say, come back in a

few months and measure again and then maybe a year later. We have talked about that in the past but right now we do not have the people to do it.

BIS2: So, maybe, when you get that instrument developed, then you can have an independent source come take the measurements and then its not us saying "this is what we've done" it is an independent sources saying "this is what they've done."

SD2: That has been a barrier across the board that handicaps us from the gate because we do not know what the end result will be. Some people will not be willing to do it because they may not like what the end result will look like.

SD3: Amen!!

SD2: There will be resistance because people do not want to give up information because they are afraid that it might effect them personally depending upon the outcome.

Question number 5.

What outcomes (positive/negative) do you see as a result of implementing a coordinated ROI initiative in your organization?

SD2: Well, in the next year, there will be a statewide coordinated effort to helping improve our technology system for capturing ROI data. A number of things are going to come from that. A positive through that process is that the schools will have to become more educated in gathering this kind of data. And then from that point, working with the tech center and the

industry's together we want to make sure that all entities are talking ROI. That statewide initiative will help in gathering this type of information.

BIS1: I have a concern about adding another layer to what is that we are asked to do on a daily basis. We have some old dogs in the system that will resist this type of change and I like what you said about possibly having an outside entity help in the gathering of this data. Of course, that is expensive when you bring in outside people to do that. Is there is some way we can sugar coat this so that it doesn't look like just another thing to do. They want you to help with paying for the training but they do not want something else to do.

SD2: It will entail our businesses making a paradigm shift so that this is not seen as a negative. We need to position this in the right way that will allow these companies to be receptive to this change and be receptive to that.

BIS2: If you took any of our business owners and said to them, "I can show you a way that you can invest 1dollar and you will receive 4 dollars return on that investment", they would take the time to come to a meeting. At this time they just do not see the importance of it.

SD3: We have done some black belt training in the past which in kind of expensive, but we co-share the cost of doing the training. We pay the cost but ask for the data on the training in return. Then part of their actual certificate is held until that data is received.

BIS1: They won't mind if they know up front that that they will be expected to provide this kind of information as a part of the training agreement.

The researcher and the focus group members agreed that question number 6 had already been answered with the following exception.

SD3:   I think the only disadvantage to implementing ROI is if we get in a hurry and we contract with a source that is not providing valid, factual data….

BIS2: If you cannot believe the numbers, nothing else will matter.

SD2:   And it needs to be holistic. This type of ROI information should be holistic for our system, not just the existing industry program.

BIS2: We also have to look at the ROI data in a linear mode. If we successfully train somebody and they stay in that job for 10 years, we should be able to account for that ROI over that entire period.

Question number 7.

After reviewing the findings of this study, what are your impressions, ideas, comments concerning the present situation in the State of Oklahoma as it relates to the implementation of ROI by Oklahoma businesses?

SD2:   One of the things that wasn't represented here because they are not here are how much our comments today would be aligned with the comments from business. I am impressed. I think that we are right on with this. I think that as we begin going down this path, our knowledge will increase and that will yield more pertinent data and it will help to increase our relationship with business in Oklahoma.   The comments that we have received serve as an affirmation of the system. That relationship is so key to being successful.

SD3:   It will yield a better product in the long run.

APPENDIX D

RESPONSES TO OPEN-ENDED QUESTIONS

Responses to Open Ended Question 6 on Survey Questionnaire, "Please tell us what your business likes most about the Existing Industry Training Program."

1. Simple to implement. Economical.

2. Response and resources to assist our facility.

3. Give us the ability to provide high quality training that would not be able to find otherwise. Trainer worked with our scheduling issues to complete the training to fit our timing needs.

4. The opportunity to benchmark with other companies both locally and nationally. Also, the opportunity for training on a national skill (education) level.

5. That they come on site to do the training. This enables us to train more employees faster.

6. The financial assistance allows Deepwater to choose site – specific training for our industry and allows Deepwater to train a larger segment of employees at one time that does not interfere with plant operations.

7. Knowledge staff and willingness to help in any way.

8. Ability to respond in a very short time frame and ease of request.

9. The simplicity of acquiring matched funds for our training requirements. We do not know all of our training needs in advance; the ability to acquire funding on a project–by–project basis when the need arises is very attractive to us.

10. Bonnie is always available and responsive. She does whatever it takes to meet ones needs.

11. The flexibility of receiving the training most needed.

12. The have been available and very helpful on several occasions. They have been prompt and very knowledgeable about our training needs.

13. Location and the fact that we are rural but still gain this type of professional training locally. Also, cost of training is great! We couldn't ask for more feasible programs.

14. Good topics; <u>very</u> good trainers.

15. Provides a good learning environment.

16. Need based.

17. Availability of resources inside and outside the vocational center.

18. Opportunities to have programs not otherwise available because of training $. Special speaker brought in @ tech center. Expense we could not have done alone.

19. Opportunity to train new employees & existing employees.

20. Opportunity to train paramedics locally when otherwise not available in our area at all.

21. Responsiveness – Understanding and support for our needs

22. Opportunity for educational programs we would not have had otherwise because we would not have been aware of them or could not afford on our own. Because of relationship we have with tech center. They make us part of their plans when they are looking at these programs. Good for all.

23. A chance for additional education for employees.

24. Close proximity and flexible training times and class sizes.

25. EIT has taken away our financial burden of providing needed training during a time that we struggled staying afloat. It was available when we just didn't have the funds otherwise. Ed Lynch is an excellent resource to work with.

26.	It gave us an opportunity to train more people with the money we have budgeted.

27.	Qualified instructors. Good information. Fits our needs.

28.	The certification acquired by our employees was invaluable especially for warranty work issues.

29.	Flexibility and willingness to assist.

30.	Focused on our actual needs.

31.	The local technology center staff is very familiar with our business. They help us evaluate our needs and provide the most efficient and effective training.

32.	Responsiveness.

33.	Responsiveness.

34.	Local easy access, good price, and funding. Good people to work with. Our contact, Don Pfannestiel, has been very helpful.

35.	Flexibility of the program to meet our needs with our shifts. Bryan Woods has been invaluable to us using this program.

36.	The course tailored to meet our plant schedule requirements. The accomplishments of the program can be traced directly to the patiently pedagogic and always – available instructor, Mr. Roy Goggins. Agreement exists among alumni that without Mr. Goggins, the program would have been much less beneficial and effective. In short, Mr. Goggins' involvement is probably what we appreciated most in our progam participation.

37.	Program helps us with monthly safety training and help us with funding for "Opacity Training".

38.	Local training that minimizes travel.

39.	It allows us to provide necessary training we would otherwise be unable to afford.

40. It made our decision on buying new automated machinery easier for the simple reason we knew we would have some support (both financially and technological).

41. On – site training tailored to our exact needs.

42. Fairview is a rural community and this is the only help available.

43. That it is available and in our area. It also meets our requirements for our insurance. Also, the industry training has helped train new people and existing employees with new skills.

44. Very open and willing to customize training to our specific needs as well as provide quality training and facilitating.

45. Convenience.

46. Price! Tailored to meet our needs. Ease of working with tech center people.

47. Very professional. Listen and adapt to our needs. Above training was rated high by both of my attending supervisors.

48. Guy Forrel. He is very quick to respond to our requests and does an excellent job coordinating training with our schedule.

49. Paid for most expenses for training.

50. Cost and knowledgeable instructors.

51. The flexibility of designing program training that is specific to the business need.

52. Close proximity.

53. Tailoring to fit our specific needs.

54. Training is always beneficial to a company. We were able to have training we otherwise would not have had.

55. Flexibility demonstrated to accommodate our training needs.

1.   None

2.   Its all good. Glad they are part of the community.

3.   Nothing

4.   Not enough funding.

5.   Haven't discovered anything yet.

6.   Only matching fund when going through the vo-tech. Our current training grant has 100% funding but with the limited time frame and paperwork required, we were only able to request funds for one project, requiring several other projects to be postponed.

7.   Need more up to date technology available and resources.

8.   Sometimes the wait for approval on training takes longer then we would like.

9.   So far I have been 100% satisfied.

10.   Difficult to identify negatives as our experience has been great. HPTC has been very flexible to accommodate our needs and we thank them!

11.   No complaints.

12.   Funding available to expedite training requirements.

13.   Sometimes the timelines for scheduling are a problem because of time Existing Industry $ has to be spent.

14.   Nothing.

15.   No problems from our side…but it would be nice for the program to have more publicity.

16.   None

17. None

18. N/A

19. N/A

20. We really do not have any complaints about the program.

21. Can't think of anything.

22. No problems.

23. The funds are limited.

24. Availability of grant dollars.

25. Availability of grant dollars.

26. For some it was we have to go to Drumright, not available in Sapulpa.

27. N/A

28. We wish there was more of it.

29. Nothing

30. N/A

31. Turnover of employees necessitates re-training.

32. The existing program is aimed at old industries i.e., safety, ag, manufacturing.

33. 0

34. None

35. None

36. On occasion, we had to travel to Moore – Norman for training.

37. N/A

38. Courses offered.

39. No carryover of unused training dollars into the next fiscal year.

40. Not enough experience.

Responses to Open Ended Question 8 on Survey Questionnaire, "Please tell us what your business would like to see changed about the Existing Industry Training Program."

1.   N/A

2.   Maybe more funds available.

3.   Allow unused training $ to be carried forward for 1 fiscal year.

4.   More course.

5.   Please continue the great work!

6.   Hold refresher courses for ISO QMS training.

7.   None. Please keep us informed.

8.   Nothing.

9.   Were very pleased – don't see any changes needed.

10.   Training that embraces new technologies that converge systems and applications.

11.   N/A

12.   Nothing

13.   More money set up for the program.

14.   The computer aided training software should be edited for errors and

       contradictions through review by several experts in the given field and their

       critical evaluations used as contributions in course refinement.

15.   Nothing on out part, but with the other area businesses would utilize this program.

16.   Expand the Sapulpa program.

17.   Secure more grant dollars.

18.   Secure more grant dollars.

19.   More information about availability.

20.   None

21.   More money and less restrictions.

22.   I think sometimes we don't know what we need. Maybe a simple analysis

       process could be used to determine needs. I know we need to "own" it.

23.   None

24.   None

25.   No specific changes.

26.   More $$$$$$$

27.   N/A

28.   N/A

29.   More $. Otherwise, we are grateful to participate anytime.

30.   More team and soft skills available for all employees sectors.

31.   Nothing. Perhaps add additional classes related to heavy industry.

32.   Again – no ideas to offer here.

33.   Nothing

34.   Stream – line the steps it takes to get approved for training.

35.   See 7.

36.   We are not made aware of the availability of training funds until the very end of

       the year and were lucky to get in a class before the deadline. The employee had

       to leave the same day funding was approved. I think we were offered use of

       unused, excess funds.

37.   Good system as is.

38.   None at this time, except possibly frequent media involvement for positive

       feedback in the community and at the statewide level.

39.   Nothing.

40.   More programs for additional education and training – Keep up with technology.

41.   More of it.

Responses to Open Ended Question 9 on Survey Questionnaire, "Please describe or explain the results or effects of the training received through the Existing Industry Training Program on your business."

1.   The training we attended prepared our quality staff to incorporate a new ISO standard into Imtec's quality system.

2.   Allowed us to do training we would not have been able to do otherwise.

3.   Good information in some areas, not relevant in others.

4.   Our business has been able to invest in new training programs which has helped us to continue to maintain a competitive edge in a rapidly changing environment.

5.   Increased knowledge of attendees. Our registrar was impressed that the state educational system offered the classes.

6.   Better knowledge in regards to handling investments for the bank.

7.   Our employees are better informed of dangers, procedures, more efficient ways to do things.

8.   Interview practices were improved. Better understanding that all employees are not lead the same way. Motivation of an employee is not the responsibility of a supervisor. They bring that to the job. Increased use throughout company of Excel.

9.   Employees can better understand their job. More efficient employees and trained employees require daily supervision. Fewer mistakes.

10.   The various leadership training programs have helped us raise awareness in areas needing further review, improvement, etc. Have also been instrumental in helping

us develop plans / outlines for improving communication, customer service, and trust building.

11. The tig welding was very beneficial to our company. We had several contracts during 2000 and 2001 which required tig welding. The safety training is always beneficial because it helps keep our workers comp insurance premiums at a lower rate. It is important to our insurer to know that we take safety seriously.

12. The training in fixed wireless and routing enabled us to accomplish tasks that were unavailable or required very expensive (Cisco) solutions that were proprietary.

13. Our nurses particularly have been able to be exposed to additions and current information in patient care. Our management staff was able to learn about customer service and bring it back to the workplace and share with other employees.

14. We were able work smarter, be more economical, and safer while doing our work.

15. Much better and safer painter.

16. The employees are much faster and more efficient in the job.

17. Safety training meets our needs for various topics such as PPE, Bloodborne Pathogens, Hearing, etc. Opacity training was needed to meet requirements of a DEQ are quality permit.

18. Thanks largely to Mr. Goggins, our maintenance staff now possesses a broader and more thorough grasp of the physical principles on which our equipment operates. This understanding has helped decrease time required for isolating equipment malfunctions and formulating more effective and expedient corrective strategies.

19. The safety training we have received through this program has saved us not only in lost time accidents, workers compensation premium cost, legal fees, but we can now use monies for safety incentives.

20. Improved skills for employees

21. Mapping was necessary for ISO 9001/2000 certification.

22. Documented our customer service program.

23. We are <u>very</u> fortunate to have had the training. My company has improved the way we market ourselves. I believe we have seen more awareness and possibly business because of the marketing training. We have reviewed and updated our sales goals and what services we want to provide. We have clearly reviewed what our strengths are and why we are different than other companies. We are then able to communicate that information.

24. Lean manufacturing training result in a productivity increase of 20% with expectations of internal improvement.

25. Offers well rounded programs to help us succeed. Improves general morale of staff.

26. Provided well trained certified employees in a reasonable length of time. Gave us the ability to complete warranty work with employees that were not previously able because of requirements.

27. Better trained employees requiring less training on our part.

28. This program gives us the chance to train our employees on the latest technology. This gives us a better trained workforce which results in a safer workforce.

29. We were able to fast track a new engineering software that significantly reduced programming time and improved program accuracy. Also trained our workforce

in lean mfg. principals and techniques providing cost savings as well as reducing flow times in several areas.

30. Gave employees some basic knowledge of procedures and also safety issues.

31. Employees were sponsored by the program to go to Chicago for special training on a new press.

32. Motivational to employees. Good learning opportunity that is applicable to the real world that we work in.

33. We have paramedics today for our service only because of this training. Tech center worked it to fit our EMT's schedule and our needs. Much extra energy and effort done by tech centers to make this work!!

34. Better employees. Better trained employees.

35. Enhanced skills. Better PR. Better patient care and customer service.

36. Allows us to keep up with technological advances required for our employee population.

37. Provided positive reinforcement to diverse workforce management. Class participants attended 3 training sessions. Improved esprit de corps tremendously.

38. Participants in the "Lead" leadership classes have gained insight into management practices. We have used this as pre-supervisor training instead of as supervisor training and had good results. The process controller classes give a good overview of a technical subject in a distraction free environment.

39. Supervisor improved knowledge of labor laws and increased interviewing skills.

40. Better prepare staff. More confident supervisor and management staff. Higher morale. Better productivity. More efficient.

41. We are required to have each employee receive 4 days of training per year and these programs help us to meet that requirement. It helps to upgrade the competency and skill level of several of our employees. It also helps us to meet our OSHA requirements.

42. Without it, as a small and new business, we would have had a very difficult time getting started and equipping ourselves and our employees to compete in this business.

43. Shift in management style with second generation of ownership.

44. Although Mr. DeCou is no longer with the company (moved away), the training he received made him more productive at using our programming system. This helped relieve the back log in our machine programming.

45. Training funds provide professional development opportunity for top managers. This group is not easy to assemble – How funding enabled us to bring in speaker w/ recognized credentials.

46. Increased productivity – Three employees received promotion and pay raise.

47. We have been able to maintain and implement a high-level of advanced training and remain in compliance with strict federal guidelines and improved our relationships with our major customers by improving on our quality systems with this training.

48. Through this program we were able to train all of our licensed nurses in ACLS training. Since these nurses have to handle anything that comes to our ER, they are now much better trained to handle these emergencies.

49.   The results from lean training for all employees was very favorable. The

        employees were very favorable. The employees enjoyed the training and gained

        first hand experience of the process.

50.   Our inspection department and manufacturing lead people received better

        understanding of quality's impact on the whole organization and how to do their

        jobs better. Learned real examples of how to use sampling and avoid over

        inspection.

51.   The training was a great success and help in our facility. It provided many of our

        employees one on one access to our IMS representative that a regional meeting

        could not provide. Money is extremely tight for small hospitals so we appreciate

        the assistance.

52.   Improved quality of PCBs. Improved production rate. Improved social

        interaction.

APPENDIX E

IRB APPROVAL FORMS

Oklahoma State University Institutional Review Board

Protocol   7/6/2005

Date :   Wednesday, October 20, 2004

IRB Application No: ED051

Proposal Title: Oklahoma Department of Career and Technology Education Existing Industry Training Program: Economic Impact, Return on Investment, and Customer Satisfation

Reviewed and   Exempt
Processed as:

Modification

Status Recommended by Reviewer(s): **Approved**

Principal
Investigator(s) :

Erick Reynolds   Lynna Ausburn
RR#, Box 275-5   235 Willard
Stroud, OK 74079   Stillwater, OK 74078

The requested modification to this IRB protocol has been approved. Please note that the original expiration date of the protocol has not changed. The IRB office MUST be notified in writing when a project is complete. All approved projects are subject to monitoring by the IRB.

The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

Signature :

Carol Olson, Chair Institutional Review Board

Wednesday, October 20, 2004
Date

Oklahoma State University
Institutional Review Board

Protocol Expires: 7/6/2005

Date: Wednesday, July 07, 2004   IRB Application No   ED051

Proposal Title: Oklahoma Department of Career and Technology Education Existing Industry Training
Program: Economic Impact, Return on Investment, and Customer Satisfation

Principal
Investigator(s):

Erick Reynolds   Lynna Ausburn
RR#, Box 275-5   235 Willard
Stroud, OK 74079   Stillwater, OK 74078

Reviewed and
Processed as: Exempt

Approval Status Recommended by Reviewer(s): Approved

Dear PI :

Your IRB application referenced above has been approved for one calendar year. Please make note of
the expiration date indicated above. It is the judgment of the reviewers that the rights and welfare of
individuals who may be asked to participate in this study will be respected, and that the research will be
conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol
   must be submitted with the appropriate signatures for IRB approval.
2. Submit a request for continuation if the study extends beyond the approval period of one calendar
   year. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are
   unanticipated and impact the subjects during the course of this research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the
authority to inspect research records associated with this protocol at any time. If you have questions
about the IRB procedures or need any assistance from the Board, please contact me in 415 Whitehurst
(phone: 405-744-5700, colson@okstate.edu).

Sincerely,

Carol Olson

Carol Olson, Chair
Institutional Review Board

VITA

Erick James Reynolds

Candidate for the Degree of

Doctor of Education

Thesis: OKLAHOMA DEPARTMENT OF CAREER AND TECHNOLOGY
EDUCATION EXISITING INDUSTRY TRAINING PROGRAM:
ECONOMIC IMPACT, RETURN ON INVESTMENT, AND CUSTOMER
SATISFACTION

Major Field: Occupational and Adult Education

Biographical:

Personal Data: Born Fredonia, Kansas, October 14, 1957, the son of Norman
and Marilyn Reynolds.

Education: Graduated from Emporia Senior High School, Emporia, Kansas, in
May 1975; received Bachelor of Science Degree in Trade and Industrial
Education from Oklahoma State University at Stillwater in May, 1989;
received Master of Science Degree in Occupational and Adult Education
from Oklahoma State University at Stillwater in May, 1994; completed
requirements for the Doctor of Education Degree at Oklahoma State
University in July, 2005.

Professional Experience: Drafting Instructor, Meridian Technology Center, July
1991 to May, 1993; Drafting Instructor, Gordon Cooper Technology
Center, July 1993 to May, 1994; Drafting Instructor, Francis Tuttle
Technology Center, May 1994 to May, 1996; Industrial Coordinator,
Eastern Oklahoma County Technology Center, August, 1999 to May,
2001; Director of Business and Industry Training, Eastern Oklahoma
County Technology Center, May, 2001 to present.

Name: Erick James Reynolds

Date of Degree: July, 2005

Institution: Oklahoma State University

Location: Stillwater, Oklahoma

Title of Study: OKLAHOMA DEPARTMENT OF CAREER AND TECHNOLOGY EDUCATION EXISTING INDUSTRY TRAINING PROGRAM: ECONOMIC IMPACT, RETURN ON INVESTMENT, AND CUSTOMER SATISFACTION

Pages in Study: 177

Candidate for the Degree of Doctor of Education

Major Field: Occupational and Adult Education

Scope and Method of Study: The purpose of this study was to describe the return on investment (ROI), the economic impact, and the customer satisfaction with training completed under the Existing Industry Training program by CareerTech technology centers for Oklahoma businesses and individual Oklahomans. Participants in the study included 59 Oklahoma businesses who participated in an Existing Industry Training program. Each participant completed a questionnaire that provided data about the economic impact, return on investment (ROI), and customer satisfaction as a result of having participated in an Existing Industry Training program. Descriptive statistics , cross-tabs, and chi-square were used to analyze the data. Stakeholder input from a focus group was analyzed qualitatively.

Findings and Conclusions: The participants indicated by their responses that the Existing Industry Training program had a positive economic impact on those local businesses that took part in the training program. The research revealed that the Existing Industry Training program had a positive return on investment for those Oklahoma businesses represented in the sample. For each dollar spent by the ODCTE on the Existing Industry Training program, Oklahoma businesses realized a return on this investment of nearly 400%. The Existing Industry Training program is seen as being a positive program that provides needed training at a very high level of satisfaction to Oklahoma businesses. The overall mean of the five satisfaction questions equaled 4.72 on a 5-point Likert scale. The limited size of the sample (n=59) versus the size of the population for the study (N=552) indicates to the researcher that there exists barriers and more generally a lack of understanding of the positive impact that ROI data can have on Oklahoma businesses. There appears to be a low level of understanding by technology center BIS staff members as to the positive impact that ROI data can have on Oklahoma businesses and the Oklahoma Department of Career and Technology Education.

Adviser's Approval: _____Dr. Lynna Ausburn_____