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The Pennsylvania State University

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A DESCRIPTIVE ANALYSIS OF INVESTMENT IN HUMAN CAPITAL BY PRIVATE EMPLOYERS IN CENTRE COUNTY, PA.

A Thesis in

Workforce Education and Development

by

Wendy L. Gilpin

Submitted in Partial Fulfillment

of the Requirements

for the Degree of

Doctor of Philosophy

May 1999

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ABSTRACT

The purpose of this study was to describe the types and frequency of formal training in the largest private establishments in Centre County, Pennsylvania. For the purposes of this study, formal training, as described by the Bureau of Labor Statistics in 1995 is *training that has a structured, formal, and defined curriculum; it may be conducted by supervisors, company training centers, businesses, schools, associations, or others. Formal training includes classroom work, seminars, lecturers, workshops, and audiovisual presentations.*

This description of training was based on information obtained from businesses, training managers, and human resource personnel, and included information on business policy and practices as well as actual training activities. The study consisted of the largest fifty private employers in Centre County, Pennsylvania, as provided by the Bureau of Labor Statistics and covered the time period of May through October 1998.

Analysis of the data revealed that an average of 3.7 hours of formal training per employee was provided during May through October 1998. An average of 0.4 training activities was provided to each employee.

The smallest establishments (100-250 employees) provided the most formal training with an average of 6.4 hours per employee. Establishments in this size category also provided the most training events per employee with 0.9 events being offered during this reference period.

The survey revealed that most establishments provide less than one hour of training within each skill category. Production/construction training was offered more than any other type of training at 0.9 hours per employee.

During 1997, wages and salaries of both full-time and part-time in-house trainers accounted for the largest spending category with $183 per employee. Establishments spent

$58 per employee on tuition reimbursement, $65 per employee on outside trainers, and $12 per employee on contributions to outside training funds.

The number of hours of formal training per employee, in general, seems to be no higher among establishments with particular employee benefits and specific workplace practices compared to the average of all establishments.

The major recommendations were to repeat the survey in other locations and using various populations.

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Chapter I

INTRODUCTION

> In an era of man-made brainpower industries, individual, corporate, and national economic success will all require both new and much more extensive skill sets than have been required in the past. By themselves skills don't guarantee success. They have to be put together in successful organizations. But without skills there are no successful organizations. (Thurow, 1996, p 76)

Background of the Problem

Today's workplaces are changing. The workers are different. The jobs are different. The skills, knowledge, and education requirements are different. There is agreement that these changes are occurring, but is our nation responding, and to what degree?

The industrialized nation of the early nineteenth century had jobs requiring repetition and muscle. Most of America's workers were employed on farms, factories, or mines. These positions required the use of psychomotor skills that were conducive to the fixed, assembly-line work that predominated of the time. By the end of World War II, a transformation began when nearly 80 percent of all U.S. jobs shifted from the factory and farm to the desk, store, or service industry. Forces such as increased competition, the global restructuring of world markets, and technological advances in the workplace caused another massive change that started in the late 1970s. These forces continue today.

Since the 1970s, business has sought solutions that would improve employee productivity. The first phase of this drive for competitiveness included the installation of high-tech equipment and computers into most offices and plants. This strategy worked in some establishments and began to turn things around by the early 1990s. However, we

now know that equipment alone is not the solution. High-tech, computer-driven equipment can only be efficient when operated by sufficiently educated employees.

The implementation of this technology caused dramatic downsizing in many firms, a process that continues today. As a result of fewer employees in the workplace and new technologies, new approaches to training and development are needed because tasks now require a combination of large amounts of new knowledge and high workloads. The productivity in today's workplace demands innovative workforce education training that creates better universal worker thinking skills. Past methods included behavior-based training and teaching *what* to think. Today's programs are more cognitive-based and train *how* to think.

Not only has the shape of jobs changed, so have the workers and their responsibilities. The new workplace is characterized by many complex tactical and strategic tasks. This setting is very different from the assembly line of the past ninety years that emphasized unvarying, rote, fixed procedural sequences relying primarily on psychomotor skills.

According to the Workforce 2000 industry report (Klein, 1990), the workforce continues to shift from manufacturing to service employment, a trend that has contributed to the decrease in the availability of low-skill jobs. Klein's report emphasizes the need to invest in human capital to address the inevitable mismatch between skills and jobs.

In response to this changing workplace, human capital–the education and training of the workforce–is becoming more critical than ever before. The impetus for this thinking comes out of growing social concern over the nation's inadequate use and development of the human capital of its citizens, and out of the awareness that better use of our human resources is necessary to maintain the long-term economic strength and social health of the country. People are, and will continue to be, our most important asset. To ensure appreciation of human capital, continual investments must be made.

Today's managers, technical workers, support staff, and production workers need training in areas such as reading, math, grammar, management writing skills, office practice, computer skills, software knowledge, English as a second language, foreign language skills for business, problem-solving abilities, and various other technical education areas (Gordon, 1997). These training areas are the workforce education areas that TQM, ISO 9000, and other advanced managerial quality-control systems have determined to be the minimal abilities of all production or service employees.

Workforce development–the training, education, and development activities that prepare individuals for employment opportunities–has become a very important issue for all players in the workforce. Within Pennsylvania alone, five different state departments administer 36 major education and job training programs. Over 1,000 providers of education, job training, and employment bureaus service the workforce development needs of the state. These programs span 28 Service Delivery Areas (SDAs), eight Industrial Resource Centers (IRCs), 108 County Assistance Offices (CAOs), 501 school districts, and 52 Area Agencies on Aging (AAA), as well as four Ben Franklin Technology Centers, 7 local development districts, and 43 community action programs. However, employer-provided training is the primary mechanism for human capital investments once individuals move from the structured school system into the working class.

During most of the twentieth century the nation's schools were expected to produce mostly a grunt labor force of minimally educated adults working at mass-production, assembly line jobs. Larger number of public school students were never expected to achieve better than fourth-to-sixth grade reading, writing and math abilities. Since 1900 about 20 percent of the American population has remained at this education level (Gordon, 1997).

Technology and international trade have forced educational expectations for workers up to at least the twelfth-grade level. By the year 2000, 80 percent of all jobs throughout America will match these educational requirements (Gordon, 1997).

Workforce education is a new strategic business paradigm that encompasses twenty-first-century educational and training standards. Investments in human capital are the strategic link to productivity, business innovation, renewed employee commitment, and competitive advantage (Gordon, 1997).

While there are a number of theories as to why wages increase over an individual's work life, a commonly accepted interpretation is that upward sloping wage profiles reflect investments in human capital, particularly investments in job training (Veum, 1995). If Veum's assessment is accurate, the growing concern regarding the decline of real wages of less educated workers is a valid issue that requires attention (Levy & Murnane, 1992).

Statement of the Problem

Human capital–the skills, knowledge, and talents of the workforce–is more vital to our nation than ever before. Unfortunately, we know little regarding the scope of workforce training in the United States. Despite growing interest in training as a means to improve company performance, little information regarding investments that are made in human capital by today's employers is available because modern accounting systems do not track this expenditure. As a result, this investment is often treated as a cost on corporate balance sheets as opposed to an asset.

Without accurate information regarding training investments, it is impossible to determine how training affects a corporation's profits and earnings. Consequently, returns resulting from training cannot be measured, and companies are more reluctant to invest in additional training.

To remain competitive and to address the growing social concern regarding inadequate utilization and development of people and the awareness that long-term economic strength and social health of the country depends on people, it must be determined if and how employers are investing in this very important asset.

Purpose of the Study

The purpose of this research study was to determine the amount of employer-provided training within the largest private establishments in Centre County, Pennsylvania. The study attempted to identify the incidence, intensity, and expenditures related to employer-provided training.

The study also investigated how the incidence and intensity of training are related to a number of establishment characteristics, such as size, industry type, part-time and contract employment, the adoption of alternative workplace practices, and various employee benefits.

Significance of the Study

This study was significant because it provided much needed data on the topic of employer-provided training. The study results also allowed some comparison with the little existing data that was currently available to determine the recent trends. The information gathered established a baseline for measuring future trends in the training industry.

There is consensus that people are our nation's best asset. However, few attempts have been made to determine if investment is being made into this very important asset. The finding of this study will give decision-makers clear information regarding needed resources and long-term training plans. It is important to know what, when, and how much training is being conducted in order to develop effective and efficient future programs

Research Questions

This research study will address the following questions concerning employer-provided training:

Question 1.

How much formal training are Centre County's fifty largest private employers providing?

Question 2.

What are the most common types of formal training being provided by Centre County employers?

Question 3.

How much are Centre County's largest private employers expending on formal training of their workforce per year?

Question 4.

Is employer-provided formal training support varied across differing business characteristics?

Limitations

All information used in this study was collected from training managers, human resource managers, or establishment owners. When an establishment did not have a designated training manager, the information was requested from the person most likely to know the information. There was no interaction or data gathered from establishment employees.

This study focused on formal training provided by Centre County employers. For the purposes of this study, formal training, as defined by the Bureau of Labor Statistics in 1995, *is training that has a structured, formal, and defined curriculum; it may be conducted by supervisors, company training centers, businesses, schools, associations, or others. Formal training includes classroom work, seminars, lectures, workshops, and audiovisual presentations.*

Informal training is training that is unstructured, unplanned, and easily adapted to situations or individuals. Examples of informal training would include having one co-worker show another how to use a piece of equipment or having a supervisor teach an employee a skill related to his or her job.

Participants for this study included the fifty largest private employers in Centre County as ranked by the Department of Labor and Industry, Bureau of Research and

Statistics (BLS, 1997). Although some of the firms included in the study operate at multiple locations, the respondents were asked to provide information only for the operation located in Centre County. All participating establishments fall within one of the standard industrial classifications listed below in Table 1.

Table 1

Standard Industrial Classifications

Standard Industrial Classification	*Code*
Mining	SIC 10, 12-14
Construction	SIC 15-17
Nondurable Manufacturing	SIC 20-23, 26-31
Durable Manufacturing	SIC 24, 25, 32-39
Transportation and Public Utilities	SIC 41, 42, 44-49
Wholesale Trade	SIC 50,51
Retail Trade	SIC 52-59
Finance, Insurance, and Real Estate	SIC 60-65, 67
Services	SIC 07, 70, 72, 73, 75, 76, 78-84, 86, 87, 89

The survey did not reflect estimates of wages and salaries of employee's time spent participating in training activities. Field tests revealed that information on the total dollar amount spent on training (training budgets) would be very difficult to uncover because costs on materials and overhead were not available. Other expenditures such as training equipment, space, and travel expenses were not included in this study. This approach replicates the Bureau of Labor Statistics study conducted in 1995. The BLS study experienced similar problems gathering financial information and did not include expenditures such as employee's time spent in training activities, training equipment, space, and travel expenses.

Much of the study deals with activities that occurred during the 1997 calendar year. The training log portion of the study asked participants to report on a "typical" two-week training period. This was done because some industries have obvious peak periods when training activities are affected. Although this process is somewhat subjective, it was the best way to gather the appropriate information from the various industries.

Types of Training

The types of training investigated in this study are defined as follows:

- Basic reading, writing, and arithmetic skills training - training in elementary reading, writing, arithmetic, and English language skills, including English as a second language
- Occupational safety training – training that provides information on safety hazards, procedures, and regulations
- Employee health and wellness training – training that provides information and guidance on personal health issues such as stress management, substance abuse, nutrition, and smoking cessation
- Orientation training – training that introduces new employees to personnel and workplace practices and to overall company policies
- Awareness training – training that provides information on policies and practices that affect employee relations or the work environment, including Equal Employment Opportunity (EEO) practices, affirmative action, workplace diversity, sexual harassment, and AIDS awareness
- Communications, employee development, and quality training - training in public speaking, conducting meetings, writing, time management, leadership, working in groups or teams, employee involvement, total quality management, and job reengineering

Job skills training

- Management training - training in supervising employees and in implementing employment practices (e.g., conducting employee appraisals, managing employees, resolving conflicts)
- Professional and technical skills training - training in professional areas such as engineering, nursing, accounting, science, law, medicine, training, education, and business; or in technical areas such as drafting, electronics, and medical technology
- Computer training - training in computer literacy, security, programming, use of standard commercial and other software, and methods for developing software applications
- Clerical and administrative support skills training - training in areas such as typing, data entry, filing, business correspondence, recordkeeping, budget, and payroll
- Sales and customer relations training - training in areas ranging from maintenance and improvement of customer relations to specific selling techniques (e.g., dealing with angry customers, information about a specific product line)
- Service-related training - training in the traditional service occupations such as food, cleaning, protective, or personal services (e.g., waitressing, cooking, dishwashing, childcare, tailoring, barbering)
- Production- and construction-related training - training in operating or repairing machinery and equipment; manufacturing, assembling, distributing, installing, and inspecting goods; and constructing, altering, or maintaining buildings and other structures

Assumptions

It was assumed that the training activities reported were based on activities that occur only at the Centre County establishment. Any activities that occur at another location were not documented.

This study collected information regarding formal training from training managers, human resource managers, and establishment owners. It was assumed that these individuals were aware of all formal training activities that occur within the establishment.

Participants were asked to report on a "typical" two-week training cycle. It is assumed that this report is representative of what actually occurs at the establishment.

The final assumption was that the information collected was dependent upon the honesty and accuracy of the respondents.

Chapter II

REVIEW OF THE LITERATURE

> Why Workforce Development...If economic opportunity is to be available to every Pennsylvanian, we must recommit ourselves to the development of world-class education, skills and training. A highly effective workplace is the key to making Pennsylvania a national leader, global competitor, and most importantly, a job creator. (Ridge, 1996, p.1)

Discussion of Human Capital Investment Need

The American Society for Training and Development has estimated that 90 percent of all new jobs in the 1990s and beyond will require post-secondary levels of reading, writing, and math. Their findings go on to report that only half the new entrants into the workplace will have reached these levels.

The United States Department of Education (1993) estimated that over 80 million American managers, support staff, and production workers today compose an inadequately skilled and poorly educated job force. In another report, the Department of Education claimed that half of American adults were close to functionally illiterate.

Avishai (1994) stated that the clear separation between the public and private sector is now changing the "business social compact." Corporate involvement in education and training has become a business responsibility that requires local collaboration with unions and schools on spending, curriculum development, and career education programs.

In response to the changing workplace and economic upheavals in the past two decades, corporate America has merged, downsized, invested in technology, and restructured their organizations. Despite these efforts, the nation continues to struggle to regain a competitive edge. Mosca (1997) stated that United States companies have realized

that they cannot compete in a global market without boosting productivity and keeping payrolls lean. As a result, the competitive marketplace and undependable economy is causing an unwillingness to hire, especially in small and midsize companies. Costs associated with full-time employees continue to rise far faster than the inflation rate. Mosca (1997) reported that the cost of machinery had risen only at an annual rate of 1.8 percent compared to benefit costs, which had risen at an annual rate of 6.2 percent. Therefore, there is a definite advantage to invest in equipment rather than employees. One example of choosing capital equipment instead of human capital would be the huge investment in information technology, which has computerized many clerical tasks.

Schuler (1994) predicted that jobs will be restructured by the year 2000. During the late 1970s and through the early 1990s, organizations changed and restructured. He believed that it was now time for jobs to be restructured. Schuler (1994) believes that most of the job growth would be in the service-producing areas. He thought that low-skill jobs will all but disappear. The job market for highly skilled professionals will grow rapidly, and new jobs will be demanded. More education, higher levels of language, math, and reasoning skills, and the ability to manage complexity will be required. Concurring with his opinion that changes must occur beyond the organization, Harris and DeSimone (1994) said companies need to focus not only on the development of their organizations, but on the development of their employees.

Contrary to most opinions, Bridges (1994) claimed that the fault did not lie within the problem of overseas competition. He believed that the job as society knows it is disappearing. He discussed that in the early nineteenth century, jobs emerged as part of our industrializing nation. Mass production and large organizations created those jobs, which are now disappearing.

Useem (1993) stated that managers and employees faced a common problem. The quality of public schooling across the nation had seemingly decreased, but the demand for well-educated employees had increased. Both Useem (1993) and Schuler (1994) agreed

that the future worker will have to possess a comprehensive education. A 1991 Harris survey found that a majority of adults involved in the hiring process felt that only 52 percent of high school graduates interviewed possessed the skills required for entry-level positions. Mosca (1997) stated that, in order to compete in a rapidly changing economy, organizations will have to make an investment in employee education. The workforce of the future will be formed with employees who are independent agents and who are accustomed to change. Since change cannot be stopped, workers must take action to adapt by developing skills that will provide them with work.

> In an increasingly competitive economy, employers may be tempted to emphasize short-term cost savings over longer-term gains. As a result, some companies may be reluctant to invest in employee career training and development. Such reluctance would be misguided, however, because in order to stay competitive, today's companies need workers who can easily adapt to the demands of new technology and job responsibilities. (Pearse, 1997, p. 33)

Corporations such as Motorola practice continuous employee education programs that are part of their short- and long-term strategic planning. Motorola documented the savings earned by training people in problem-solving methods and statistical process-control and found that the rate of return was about thirty times the training dollar invested (Gordon, 1997).

Our current management and professional education systems need an immediate and radical overhaul because they are not adequately preparing individuals for today's changing workplace. The reengineering of these systems is required to train and develop knowledge-workers for career success in the emerging information age (McCanna & Pearse, 1997).

Human capital investment is a new way of looking at employees' costs and outputs, as opposed to the old industrial-age view of employees primarily in terms of labor costs. Thurow (1996) strongly asserted that it is human capital–and no longer merely money, materials, and machines–that gives today's corporations their competitive advantage.

Gordon (1994) showed that business will continue to offer basic training such as supervision, management, and service and assembly behaviors (see Figure 1). These are all fundamental to how any business operates and makes a profit. The difference in this component is that the training will be offered not only to managers, but also to most employees. The rationale for this is based on the belief that employees are not able to solve work problems unless they understand how the company operates and how their individual work influences the final service or product.

Gordon believed that most businesses will add the second triad component, skill, to address the need of individuals to improve overall comprehension through better writing, math, reading, foreign language, or English as a second language. These are important components because of increasing competitive pressure from the global economy.

The final component of the triad is education. Gordon believed that the education component is possible only after the two base employee development components are addressed.

Becker (1962) and Mincer (1962) suggested some time ago that on-the-job training investments are likely responsible for a significant part of the wage growth that occurs in the early years of tenure. While economists have long been aware of the importance of on-the-job training, current knowledge about its quantity and its returns is still scarce. Becker (1962) developed a model showing that the effect of training on wages and mobility can be expected to depend crucially on the degree to which the training is specific or general.

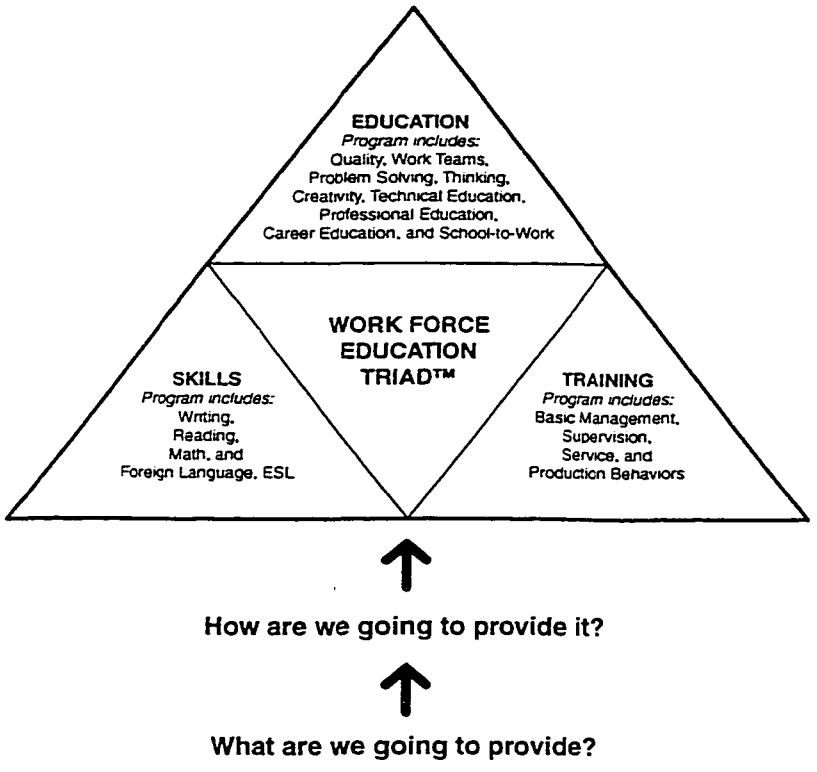

Figure 1. Illustration of Gordon's Concept of the Workforce Education Triad (1994).

As can be seen in the literature, there is a need to invest in our employees. Regardless of the conflicting reasons why our nation is in its current situation, there is agreement that action must be taken to remedy the current state and that workforce development efforts–investing in people– is the solution.

Prior to this study, few attempts have been made to determine if employers are responding to this crisis and actually investing in their workforce. Although some studies have been conducted, the response rates have typically been low, and many of the results have been based on subjective interpretation. The following section outlines past studies that have addressed this topic.

In general, there is little quality data available on the amount of training being provided and on the costs of training. This deficiency is due to the difficulty in measuring

these variables. Further, there appears to be no universally accepted definition of the term *training*. As a result, the types of information vary greatly from one survey to another.

Previous Studies Investigating Employer-Provided Training

Bureau of Labor Statistics (SEPT95).

The Bureau of Labor Statistics (BLS) conducted the 1993 and 1995 Survey of Employer-Provided Training (SEPT) (Bureau of Labor Statistics, 1996). The 1993 study generated a comprehensive base of information on the nature and existence of formal training provided or financed by employers. Nearly 12,000 private establishments of all sizes were surveyed to determine what types of formal training were provided during 1993.

The 1995 survey was a more comprehensive study that provided information on the amount of formal and informal training provided by employers as well as the amount employers spent on selected training expenditures. This survey was conducted during personal visits to more than 1,000 private establishments with 50 or more employees from May through October 1995. A representative of the establishment provided information on the hours and costs of formal training and randomly selected individual employees who provided information on their hours of both formal and informal training.

In an attempt to provide nationally representative data on current training practices of employers, the BLS conducted the SEPT95 for the Employment Training Administration of the U.S. Department of Labor. The sample establishments were drawn from the list of privately owned establishments on the BLS Universe Data Base.

Because previous research showed that smaller establishments often have no formal training (Frazia, Herz, Horrigan, 1995), the sample was restricted to establishments with 50 or more employees. The intent of BLS was to collect information on both the incidence and intensity of training. Specifically, BLS was interested in the number of hours, the number of training events, and the costs associated with employer-provided training.

The SEPT95 study consisted of two survey instruments: a questionnaire and a training log. The questionnaire was designed to collect information on a variety of

establishment characteristics and on selected costs of formal training. Expenditure information included the dollar amount spent during 1994 on the wages and salaries of in-house trainers, fees paid to outside training firms, tuition reimbursement, and contributions to training funds sponsored by unions, trade associations, and other outside agencies. A response rate of about 74 percent resulted from 1,062 usable employer questionnaires.

The training log was designed to collect information on the amount of formal training that employers provided or financed for their employees. Employers were instructed to report on all the formal training events provided or financed by the establishment over a two-week period. Depending on the availability of data, interviewers either collected training log information for the previous two weeks at the time of the interview or left the log with the responders and asked them to complete it during the following two weeks.

For each training event, information was gathered on the number of employees who participated, the total hours of training conducted, the type of training, and who conducted the training event. A response rate of about 66 percent resulted from 949 returned training logs.

In addition to the information collected from the employers, a similar approach was used to gather information from randomly selected employees. Selected employees were asked to report on demographic information such as age, sex, race, ethnicity, occupation, education, earnings, tenure, and past training activities. A response rate of approximately 50.6 percent resulted from 1,074 employee questionnaires that were returned.

Selected employees were also asked to keep a training log for ten days. This instrument was used to capture the number of hours of both formal and informal training. Employees were instructed to document any activity that taught them a skill or provided new information that enhanced their ability to do their job. The response rate for the employee log was approximately 48 percent.

Results from SEPT95 showed that approximately 93 percent of establishments with 50 or more employees either provided or financed formal training to their employees in the previous 12 months. The employee portion of the study revealed that 70 percent of the employees working in these establishments reported receiving formal training in the previous 12 months. Informal training was even more common with nearly 96 percent of employees reporting they received some form of informal training during the reporting period.

The amount of training provided was also investigated by looking at the number of hours spent. Employers reported that they provided an average of 11 hours of formal training per employee during May and October 1995, and employees estimated they spent 13 hours in formal training during the reporting period. Results indicated that time spent engaged in informal training activities was significantly more, indicating that as much as 70 percent of training delivered during the six-month period was of the informal variety.

The SEPT95 study also attempted to gauge employer's investment in training by looking at the amount of money spent on training. Although this type of information is hard to acquire, the SEPT95 study gathered information on selected direct and indirect training costs.

Employers in establishments with 50 or more employees spent an average of $139 per employee during 1994 on wages and salaries of in-house trainers. This figure represents both full- and part-time trainers. Payments to outside trainers were, on average, $98 per employee. Approximately $51 per employee was spent on tuition reimbursement. Payments to outside training funds averaged only $12 per employee.

The BLS study investigated the extent to which the incidence and intensity of training are related to a variety of establishment characteristics, including size, industry, labor turnover, the nature of part-time and contract workers, union presence, various workplace practices and benefits.

The findings from both the employer and employee study revealed that smaller establishments are less likely to provide formal training than larger ones. In general, larger establishments provide more training to their employees. Firms that offer other benefits such as employee assistance programs, pension plans, wellness programs, and profit sharing were more likely to provide training than firms not offering such benefits. This finding indicates that establishments that form long-term commitments with their employees are more likely to train their workers.

The study also found that certain work practices are linked to training as well. Just-in-time (JIT) inventories, Total Quality Management (TQM), teams, quality circles, job rotation and employee participation in decision making all seemed to be correlated with higher levels of employer-provided training.

More hours of computer training (2.1 hours per employee) were provided than any other type of formal job-skill training. Professional/technical training and production/construction-related training were the next most frequent types of formal training with about one hour of training per employee for each type.

The largest number of hours of general skills training was provided in communications/employee development and occupational safety with 1.4 hours and 1.2 hours respectively. Employees also attended more formal training activities in these same areas with 0.3 and 0.6 activities respectively.

Occupational safety training was provided by a relatively high percentage of establishments (72 percent of establishments), and a relatively large amount of this type of training was provided (1.2 hours per employee and 0.6 activities per employee). Orientation training was also commonly provided (72 percent of establishments), but the amount of this type of training was relatively small, only 0.6 hours of formal training per employee and 0.1 activities per employee.

The BLS study asked employers why they provide training. Although exact figures are not available, most felt that training was necessary to provide skills specific to their

establishment. A large number also indicated that training is needed to keep up with changes in technology and production methods and to retain their employees.

The study also asked why employers do not provide training. Most felt that on-the-job training satisfied their needs. Very few cited the fear of losing employees to other employers as a reason to not offer training (Bureau of Labor Statistics, 1996).

Training Magazine Survey

Every October, *Training* Magazine produces an Industry Report that contains a wealth of statistical information regarding employer-provided training (*Training*, 1998). This annual study attempts to gauge the state of training and development in the United States by investigating training practices in establishments with 100 or more employees. Specifically, the *Training* survey asks the following questions:

- How much do organization spend on training employees?
- What employees are organizations training?
- How are organizations training their employees?

The 1998 *Training* study went further and focused on the area of technology. In addition to the above questions, *Training* also sought answers to the following:

1. How much of the training effort is dedicated to helping employees keep up with changing computer applications and systems?
2. How are the Internet and corporate intranets affecting the way training is delivered to employees?

Training reported that budgeted spending on formal training by U.S. organizations with 100 or more employees exceeded $60 billion in 1998. This figure represents a 3.6 percent increase over 1997 figures and a 26 percent increase since 1993.

Salaries paid to internal training staff account for the largest portion of the budget, and have increased 3.2 percent over 1997 figures. The fast growing expenditure is on outside trainers with a 5.1 percent increase over 1997.

Consistent with previous Training studies, the 1998 findings showed that more than half of training budgets were used for managerial and professional training programs.

Respondents estimated that about 19 percent of all formal training courses offered in their organizations are now delivered using computers (CD-ROM, diskettes, Internet, or internal network). Approximately 70 percent of formal training courses are classroom based and delivered by "live" instructors.

American Society for Training and Development Benchmarking Forum.

The lack of good information regarding training has made it impossible to answer training's big question–how does training affect an organization's profits and earnings. In an attempt to gather this information, the American Society for Training and Development (ASTD) has developed standard measures that can be applied across companies with the ASTD Benchmarking Forum (American Society for Training and Development, 1998). Firms participate in this Forum by answering a set of questions regarding their training investments and practices using the ASTD Measurement Kit. The Measurement Kit is divided into two parts. Part I is designed to measure a company's training investments. It includes questions on training expenditures, outsourcing practices, training content, methods of instruction, evaluation practices, human resource practices, and a number of basic questions about the company itself (industry, number of employees, total payroll, etc.) Part II is optional, and is designed to measure a company's training outcomes. It contains two sets of core questions that were designed to be "benchmarkable." The first set can be administered to trainees immediately following a training course, and evaluates their initial reaction to the course. The second can be administered to trainees (or their supervisors) some months after the training in order to evaluate the effect of the training on their job performance. The company tallies the responses and submits the data to ASTD.

Participating company will receive an individual, customized Benchmarking Report that will compare their training practices with (1) average responses among comparable companies (e.g., those in their industry which are of similar size); (2) average responses

among all respondents; and (3) a "leading" benchmark for many questions–the average response of companies at the 90th percentile.

Although this study yields valuable information, it focuses on very large, cutting-edge firms. The finding are not representative of the entire industry.

Human Performance Practices Survey.

Combining information from the BLS Survey, the National Household Education Survey, the American Society for Training and Development's (ASTD) Benchmarking Forum, the Human Performance Practices Survey (HPPS) was conducted by ASTD in 1997 (Bassi & Van Buren, 1998). This study sought to establish a somewhat comprehensive and up-to-date estimate of how much U.S. employers spend on training. Information was collected from 540 randomly selected, private U.S. organizations regarding training practices and expenditures. Specifically, the study investigated the following questions:

- How much training do business organizations provide?
- What kinds of training do they provide?
- Who provides the training?
- How is training delivered?
- What training and workplace practices do organizations use?
- What is the relationship between training and performance?

Unlike the BLS study, which showed that training expenditures vary with size and type of industry, the HPPS found a much more complex situation. This study revealed a wide amount of variation even within specific size and industry categories. For example, two different airplane manufacturers in the same geographic region reported on expenditures. One reported training expenditures per employee of $1,489; the other spent only $177 per employee.

In general, the study did compile some interesting data. It demonstrated how complex the training industry could be with significant variations both between and within categories.

National Household Education Survey.

The National Household Education Survey (NHES), conducted periodically by the National Center for Education Statistics, collects data on high-priority topics (Kim, Collins, Stowe & Chandler, 1995). The telephone survey is conducted by the U.S. Department of Education's National Center for Education Statistics (NCES). Data collection took place from January through April 1995. The sample is nationally representative of all civilian, noninstutionalized persons in the 50 states and the District of Columbia. This sample was selected using random-digit-dialing (RDD) methods, and the data were collected using computer assisted telephone interviewing (CATI) technology.

The adult education component of the NHES:95 sampled civilian adults who were age 16 and older and not enrolled in elementary or secondary school. The only person who could respond to the adult education interview was the sampled adult him/herself. Adult education interviews were conducted with 19,722 individuals.

The study conducted in 1995 addressed the following six educational activities in the Adult Education component: English as a Second Language (ESL), Adult Basic Education (ABE), credential programs leading to college or post secondary technical diploma, apprenticeship programs, job-skill courses, and personal development courses.

The study revealed that approximately 76 million adults (40 percent) participated in one or more adult education activities during the previous 12 months. This represented a substantial increase in participation compared to that found in the adult education component of the NHES:91, which showed a 32 percent participation rate. About one-fifth of adults participated in work-related courses.

Participation rates overall and for the two leading types of educational activities, work-related courses and personal development courses, were strongly associated with the

adult's educational attainment. Only about one in six non-high school graduates participated in any educational activities, compared to nearly six out of ten college graduates.

Summary of Literature Review Findings

A review of the literature reveals that employer-provided training is a critical issue in nearly every sector of our society. There is universal agreement that employers should be investing into their human capital. There are a number of reasons why people believe such investment is important. Many reasons are centered around the issue of U.S. workers not being adequately trained to be competitive in global markets a concern about meeting the challenges associated with new technology, and the decline of real wages in less-educated workers.

The literature further indicates that there is little available data regarding the amount of formal employer-provided training. One reason for a lack of quality data is that there seems to be no universally accepted definition for the term "training." Because of this lack of information, estimates vary widely between the various studies that have been conducted.

To date, the Bureau of Labor Statistics conducted the most comprehensive study dealing with the topic of employer-provided training for the Employment Training Administration of the U.S. Department of Labor in 1995. The intent of the Survey of Employer-Provided Training (SEPT95) was to uncover representative data on current training practices of employers. The findings of the SEPT95 study, which include information on both formal and informal training, now serve as a benchmark for national data.

Chapter III

METHODOLOGY

> America's future prosperity relies, in part, on the education of all our citizens. We no longer have any "disposable" students or workers. Neither Japan nor Western Europe has any inherent technological advantage or production system that cannot be duplicated or improved upon in the United States. However, they earned their global competitive edge by making sustained and significant investments in the education and training of ALL their people. The future is NOW! It is time for America to do the same. (Gordon, 1997, p. 17)

Introduction

Human capital–the skills, knowledge, and talents of the workforce–is more vital to our nation than ever before. Unfortunately, we know little regarding the scope of workforce training in the United States. Despite growing interest in training as a means to improve company performance, little information regarding investments that are made in human capital by today's employers is available because modern accounting systems do not track this expenditure. As a result, this investment is often treated as a cost on corporate balance sheets.

It is impossible to determine how training affects a corporation's profits and earnings without accurate information regarding training investments. Consequently, returns as a result of training cannot be measured, and companies are more reluctant to invest. The purpose of this research study was to determine the amount of employer-provided training within the largest private establishments in Centre County, Pennsylvania. The study attempted to identify the incidence, intensity, and expenditures related to employer-provided training.

The study also investigated how the incidence and intensity of training are related to a number of establishment characteristics such as size, industry type, labor turnover, part-time and contract employment, the presence of unions, the adoption of alternative workplace practices, and various employee benefits.

Population

The target population for this study began with a census of the 50 largest private establishments in Centre County, Pennsylvania. For this study, an establishment is an economic unit that produces goods and services. It is usually at a single physical location and is engaged primarily in one type of economic activity. Pennsylvania's Department of Labor and Industry identified these establishments in their semiannual ranking report (Bureau of Labor Statistics, 1997). The list was analyzed to determine the standard industrial classification and number of employees associated with each establishment. The study was limited to private establishments that had 50 or more employees and fall into one of the SIC codes specified in Table 1 (see page 7). Because of the focus of the study, public establishments were eliminated from the original population. In addition, four establishments chose not to participate and two other establishments could not be identified by the researcher. The BLS ranking report is generated ever six months. Using the report produced in June 1997, eight additional establishments who were still prominent employers in the county were included to have a more representative target population. Table 2 shows the adjusted target population.

Although this study was based on a national study conducted by the Bureau of Labor Statistics in 1995, the populations of the two studies are quite different. The BLS study involved a much larger population with an even distribution across all industries listed in Table 1. Because of the large presence of manufacturing firms in Centre County, the distribution of industries for this study was not as evenly divided. Table 4 in Chapter IV shows a profile of the establishments participating in this study.

Table 2

Adjusted Target Population of the Largest Employers in Centre County, Pennsylvania

50 largest Centre Co. employers as reported by Bureau of Labor Statistics 12/97	50
Elimination of public establishments	10
Establishments refusing to participate in study	4
Establishments unable to be identified	2
Addition of still-prominent establishments ranked in previous BLS report 6/97	8
Adjusted Target Population	42

Due to confidentiality restrictions, the Department of Labor and Industry was unable to provide any additional information such as employer mailing addresses, personnel names, SIC codes, or the total number of employees in each firm. Therefore, this information was obtained by telephoning each establishment in the preliminary phase of this study to develop an accurate, comprehensive target population. Because of confidentiality agreements with participants, no establishment names will be used in this study.

Centre County, Pennsylvania, has enjoyed one of the lowest unemployment rates in the state over the past two years. The region is always ranked among the leaders in percentage of people employed. In addition, the Centre region has been identified by CorpTech, an independent economic auditor based in Woburn, Massachusetts, as a national leader in the creation of high-tech jobs (Chamber of Business and Industry of Centre County, 1998). Table 3 illustrates a profile of Centre County residents and their employment status.

Table 3

Status of Centre County, Pennsylvania Employees in 1997

Status	*Employees*
Total Workers in County	57,114
Worked in County	53,400
Worked Outside County	3,327
Worked Outside State	387

Based on 1996 estimates, Centre County has a population of 130,860 residents. The region has an atmosphere that encourages learning: nearly 33 percent of all county adults are at least four-year college graduates. This statistic is impressive considering that the state average is 17.94 percent and that the national average is 20.3 percent. Approximately two-thirds of county adults have some college education and more than 80 percent of adults are high school graduates. Some research indicates that training intensity is correlated to education levels (Kim, Collins, Stowe & Chandler, 1995).

Instrumentation

This study used two validated survey instruments: a questionnaire and a training log. These instruments were borrowed from the 1995 Bureau of Labor Statistics study. Although the instruments were already validated, they were further tested prior to use. For the purposes of this study, a panel of five experts including training directors and human resource managers reviewed the instruments. These individuals analyzed the instruments for face and content validity, reliability, and objectivity. They also tested them for ambiguities, level of effort required, and sensitivities and availability regarding requested data. No changes were made to the questionnaire, but a slight modification was made to the training log–changing the appearance from a calendar to a table. The pilot group advised the researcher that this format was easier to use.

The questionnaire was designed to collect information on a variety of establishment characteristics and on selected costs of formal training. Expenditure information included the dollar amount spent during 1997 on the wages and salaries of in-house trainers, fees paid to outside training firms, tuition reimbursement, and contributions to training funds sponsored by unions, trade associations, and other outside agencies.

The training log was designed to collect information on the amount of formal training that employers provided or financed for their employees. Employers were instructed to report on all the formal training events provided or financed by the establishment over a two-week period. It has been found that recall problems have caused estimates of training to vary greatly by survey (Loewenstein & Spletzer, 1998). Following the format used by BLS, it was felt that the two-week reporting request would require limited recall by the reporters. For each training event, information was gathered on the number of employees who participated, the total hours of training conducted, the type of training, and who conducted the training event.

Data Collection

Data collection was accomplished with the use of the two survey instruments described above. The questionnaire, which focused on training programs and expenditures as well as workplace practices of the establishments, was used as an interview guide when meeting with individual establishment. The information on the questionnaire was gathered using a two-phase approach. The first information was collected during a 30-minute interview with the training director, human resource manager, or establishment owner. The information collected during this phase included details of establishment characteristics. The interviewer provided the company representative with two pullout sections of the questionnaire to be completed and returned within the following two weeks. These sections requested information regarding the number of employees in various job categories, employee turnover rates, and information on training budget and expenditures. The expenditure items included the dollar amount spent during 1997 on the wages and salaries

of in-house trainers, fees paid to outside training companies, tuition reimbursement, and contributions to training funds sponsored by unions, trade or professional associations, and other outside agencies.

The final portion of the information gathered involved completion of a training activity worksheet that was used to document typical training activities for a two-week time frame. Establishments were asked to report on all formal training activities provided or financed by the establishment in a typical two-week period. This information was gathered and reported by either the training director, human resource manager, or establishment owner (or proxy). The information representing the two-week period was then weighted to determine a value for a six-month period.

A pilot study group revealed that training information is typically not centralized in most establishments. Therefore, the two-week reporting request was reasonable since it required little recall. In cases where the two weeks surrounding the interview did not represent a typical training period, establishments were asked to report on a period that was representative. The BLS used a similar approach in their 1995 study.

The approach used allowed establishments to report on the intensity of training by minimizing recall issues. Recall and definition problems have caused estimates on training to vary greatly by survey (Loewenstein & Spletzer, 1998).

Data Analysis

The purpose of this study was to define incidence, intensity, and expenditures associated with employer-provided training within the largest private employers in Centre County, Pennsylvania. Specifically, the following questions were posed:

- How much formal training are Centre County's largest private employers providing?
- What are the most common types of formal training being provided by Centre County employers?

- How much are Centre County's largest private employers expending on formal training of their workforce?
- Is employer-provided formal training support varied across differing business characteristics?

This study represents descriptive, correlated research. The data used in the study was the result of a survey of Centre County employers addressing the topic of formal, employer-provided training.

The statistical procedure selected to do data analysis for this study was descriptive statistics of frequency distributions, percentages, and correlation. Statistical analysis for this study was done using Microsoft Excel.

Chapter IV

FINDINGS

> Pennsylvania's proud workers fueled the Industrial Revolution using the strength of their backs. Now we must lead a new economic revolution using the power of our minds...In the knowledge-based economy of the twenty-first Century, employers must see job training as a valuable business investment rather than an expense. (Ridge, 1998, p. 2).

This study investigated different aspects of training and their relationships to establishment characteristics, such as size, change in labor force size, industry type, scope of part-time employment, self-reported adoption of various alternative workplace practices, and the provision of employment benefits. The results, including the average number of hours of formal training per employee, the average number of formal training events per employee, and expenditures in specific spending categories are organized around the research questions presented in Chapter 1.

Data collection for this study involved site visits to 42 Centre County establishments during October 1998. The establishments used in this study represent the largest private firms in Centre County, Pennsylvania, as of December 1997. Each of these firms was classified into one of the Standard Industrial Classification (SIC) categories, based on the 1987 Standard Industrial Classification Manual.

Table 4 shows the distribution of establishments participating in this study. After adjusting the original target population, see Table 2 (p. 27), information was collected from 42 establishments. Firms employing 100-250 individuals represent the largest category at 43 percent of the population. Manufacturing firms account for 36 percent when examined by industry type.

Table 4

Profile of Largest Centre County Establishments Participating in the Study (N=42)

Profile Characteristic	N	Percent
Size of Business (# of Employees)		
100-250	18	43
251-400	9	21
401-700	8	19
700+	7	17
Industry Type		
Service	13	31
Retail	8	19
Manufacturing	15	36
Finance, Insurance, Real Estate	3	7
Construction	3	7

Employers were asked to provide information on their establishment's *formal* training. Every establishment who participated in this study reported that it had provided or financed some type of formal training during the reference time period. For the purpose of this research, formal training, as defined by the Bureau of Labor Statistics, *is training that has a structured format and a defined curriculum, and may be conducted by in-house trainers, supervisors, company training centers, outside trainers or training companies, schools, associations or others. It may include classroom work, seminars, lectures, workshops, and audiovisual presentations.*

Extent of Formal Training

Research Question 1.

How much formal training are Centre County's fifty largest private employers providing?

Employers in those Centre County establishments ranked as the largest by the Bureau of Labor Statistics standards provided an average of 3.7 (Table 5) hours of formal training per employee in May through October 1998. The range of hours of formal training reported varied from a low of one hour to a high of 192 hours. The number of formal training activities averaged 0.4 (Table 6) per employee during this six-month period. The range of formal training activities varied from a low of 0 activities to a high of 7 activities per employee.

As shown in Table 5, the smallest establishments (100-250 employees) provided the most formal training to their employees on average (6.4 hours per employee). Establishments with more than 700 employees provided 2.5 hours of training per employee. One hour of training per employee was provided in establishments with 251-400 employees, and 1.3 hours per employee were provided in establishments with 401-700 employees.

Consistent with the hours of training provided, Table 6 shows that employees in smaller establishments also participated in the most formal training events. Establishments with 100-250 employees provided 0.9 events per employee during the six-month study period. Establishments with 251-400 employees provided 0.4 events per employee, and 0.1 events per employee were provided in all establishments with more than 401 employees.

Table 5

Mean Number of Hours of Formal Training per Employee by Content Area of Formal Training and Size of Establishment Based on Number of Employees Occurring Between May and October 1998

Type of Formal Training	Total (42)	Size of Establishment: 100-250 employees (18)	251-400 employees (9)	401-700 employees (8)	700+ employees (7)
Content Area		- - - - Mean Hours per Employee - - - -			
Any formal training	3.7	6.4	1.0	1.3	2.5
Job Skills					
Management	0.4	0.2	0.3	0.4	0.5
Professional/Technical	0.5	0.9	0.0	0.1	0.5
Computer	0.3	0.5	0.0	0.2	0.3
Clerical/Administrative	0.3	0.3	0.0	0.0	0.0
Sales/Customer Relations	0.4	0.4	0.4	0.0	0.0
Service	0.0	0.0	0.0	0.0	0.0
Production/Construction	0.9	2.8	0.1	0.1	0.9
General Skills					
Basic Skills	0.0	0.0	0.0	0.0	0.0
Occupational Safety	0.2	0.2	0.2	0.0	0.2
Employee Health/Wellness	0.0	0.0	0.0	0.0	0.0
Orientation	0.5	0.9	0.0	0.5	0.1
Awareness	0.1	0.2	0.0	0.0	0.1
Comm./Development	0.0	0.0	0.0	0.0	0.0

Table 6

Mean Number of Formal Training Activities per Employee by Content Area of Formal Training and Size of Establishment Based on Number of Employees Occurring Between May and October 1998

Type of Formal Training	Size of Establishment				
	Total (42)	100-250 employees (18)	251-400 employees (9)	401-700 employees (8)	700+ employees (7)
Content Area	- - - Mean # of Formal Training Activities per Employee - - -				
Any formal training	0.4	0.9	0.4	0.1	0.1
Job Skills					
Management	0.0	0.1	0.1	0.0	0.0
Professional/Technical	0.0	0.1	0.0	0.0	0.0
Computer	0.0	0.1	0.0	0.0	0.0
Clerical/Administrative	0.1	0.1	0.0	0.0	0.0
Sales/Customer Relations	0.1	0.1	0.1	0.0	0.0
Service	0.0	0.0	0.0	0.0	0.0
Production/Construction	0.0	0.1	0.0	0.0	0.0
General Skills					
Basic Skills	0.0	0.0	0.0	0.0	0.0
Occupational Safety	0.0	0.1	0.1	0.0	0.0
Health/Wellness	0.0	0.0	0.0	0.0	0.0
Orientation	0.0	0.1	0.0	0.0	0.0
Awareness	0.0	0.1	0.0	0.0	0.0
Comm./Development	0.0	0.0	0.0	0.0	0.0

The service, retail, and manufacturing industries provided the greatest hours of formal training with an average of 4.1, 3.2, and 3.0 hours per employee, respectively. The construction and finance, insurance, and real estate industries provided the fewest hours of formal training per employee with an average of 0.9 and 0.2 hours, respectively (see Table 7). Service, retail, and manufacturing industries (Table 8) also provided the most number of formal training events per employee (approximately .3 to .4 activities per employee).

Content of Training

Research Question 2.

What are the most common types of formal training being provided by Centre County employers?

Within each of the training content categories, most establishments provided and/or financed less than one hour of formal training per employee during the reference period. More production/construction training was provided (0.9 hours per employee) than any other content area of formal job-skills training. Professional/technical and orientation training were the next most frequent areas of formal training provided with 0.5 hours of training per employee per each area. No training in the areas of service, basic skills, employee health/wellness, or communications/ development was provided in any of the reporting establishments (Table 7).

Consistent with the hours of training provided, the number of training events per employee was greatest within the service and retail industries. Both of these industries reported an average of 0.4 events during the reference period. The manufacturing industry reported an average of 0.3 events per person. All establishments reported some training events, but the mean number of activities per employee during the reference period (Table 8) is often miniscule. The information in Table 9 supplements Table 8 by showing the frequency of various content areas of training provided by the participating establishments.

Table 7

Mean Number of Hours of Formal Training per Employee by Content Area of Formal Training and Industry Type Occurring Between May and October 1998

Type of Formal Training	Industry Type					
	Total	Construction	Finance, Insurance, Real Est.	Manu-facturing	Retail	Service
	(42)	(3)	(3)	(15)	(8)	(13)
Content Area	- - - - Mean Hours per Employee - - - -					
Any formal training	3.7	0.9	0.2	3.0	3.2	4.1
Job Skills						
Management	0.4	0.9	0.0	0.3	0.0	0.0
Prof./Technical	0.5	0.0	0.1	0.4	0.3	2.5
Computer	0.3	0.0	0.2	0.4	0.0	0.2
Clerical/Admin.	0.3	0.0	0.0	0.0	0.3	0.0
Sales/Cust. Relation	0.4	0.0	0.0	0.4	0.3	0.4
Service	0.0	0.0	0.0	0.0	0.0	0.0
Production/Construction	0.9	0.0	0.0	0.9	1.0	0.0
General Skills						
Basic Skills	0.0	0.0	0.0	0.0	0.0	0.0
Occupational Safety	0.2	0.0	0.0	0.2	0.0	0.3
Health/Wellness	0.0	0.0	0.0	0.0	0.0	0.0
Orientation	0.5	0.0	0.0	0.2	1.1	0.5
Awareness	0.1	0.0	0.0	0.0	0.0	0.1
Comm./Development	0.0	0.0	0.0	0.0	0.0	0.0

Table 8

Mean Number of Formal Training Activities per Employee by Content Areas of Formal Training and Industry Type Occurring Between May and October 1998

Type of Formal Training	Total (42)	Industry Type: Construction (3)	Finance, Insurance, Real Est. (3)	Manu-facturing (15)	Retail (8)	Service (13)
Content Area	- - - - Mean # of Formal Training Activities per Employee - - - -					
Any formal training	0.4	0.1	0.0	0.3	0.4	0.4
Job Skills						
Management	0.0	0.1	0.0	0.0	0.0	0.0
Professional/Technical	0.0	0.0	0.0	0.0	0.1	0.1
Computer	0.0	0.0	0.0	0.0	0.0	0.0
Clerical/Administrative	0.1	0.0	0.0	0.0	0.1	0.0
Sales/Customer Relations	0.1	0.0	0.0	0.1	0.1	0.1
Service	0.0	0.0	0.0	0.0	0.0	0.0
Production/Construction	0.0	0.0	0.0	0.0	0.0	0.0
General Skills						
Basic Skills	0.0	0.0	0.0	0.0	0.0	0.0
Occupational Safety	0.0	0.0	0.0	0.0	0.0	0.1
Health/Wellness	0.0	0.0	0.0	0.0	0.0	0.0
Orientation	0.0	0.0	0.0	0.0	0.0	0.1
Awareness	0.0	0.0	0.0	0.0	0.1	0.1
Comm./Development	0.0	0.0	0.0	0.0	0.0	0.0

Table 9

Frequency of Activities and Proportion of Time Various Content Areas of Training Offered by Centre County's Largest Employers Occurring Between May and October 1998

Content Area	Frequency	Total Hours of Training	Relative Percent of Total Training Hours
Awareness	2	6.0	.8
Clerical/Administration	1	4.0	.5
Computer	12	146.5	19.8
Management	8	84.0	11.3
Orientation	9	99.0	13.4
Production/Construction	11	218.0	29.4
Professional/Technical	7	98.0	13.2
Safety	11	62.0	8.4
Sales	6	24.0	3.2
TOTAL	67	741.5	100.0

N=42; total frequency may exceed 42 because an establishment could report multiple content areas.

Overall, production/construction training accounted for 29.4 percent of all reported training. Computer training was the next largest content area, representing 19.8 percent.

The percent of total training hours spent in various content areas, based on the size of the establishment, is presented in Table 10. Consistent with the overall findings, 48.5 percent of reported employer-provided training in firms with 100-250 employees was in the production/construction content area. The largest portion of training in establishments with 251-400 employees, 38.8 percent, was in computer training. Nearly one-half of all reported training, 48.6 percent, in establishments with 401-700 employees was in the management content area. Training in the largest firms tended to be more evenly distributed with 27.8 percent being computer training, 26.5 percent production/construction training followed by management, professional/technical, and safety. Again, no service, basic

skills, employee health/wellness, or communications/ development content training was provided in any of the reporting establishments.

Table 11 shows the percent of various content areas of training, based on industry. All training provided by the construction industry was in the area of management. It should be noted that only three reporting establishments represent this industry.

Computer training was the largest portion (66.7 percent) of training in the finance, insurance, and real estate industry. Professional/technical training was the only other content area provided by this industry.

Retail establishments provided a large amount of orientation training, with 49.6 percent of the training being in this content area. Retailers also provided a fair amount of production/construction training with 36.5 percent of total training of this variety.

Manufacturing and service industries tended to provide a wider range of training with the various content areas being more evenly distributed. The largest portion of training within manufacturing firms was in production/construction (37.8 percent). Computer training accounted for 38.7 percent of training in the service industry.

Table 10

Percent of Total Training Hours Spent in Various Content Areas of Formal Training by Size of Establishment Based on Number of Employees Occurring Between May and October 1998

	Size of Establishment				
Type of Formal Training	Total (42)	100-250 employees (18)	251-400 employees (9)	401-700 employees (8)	700+ employees (7)
Content Area	- - - - Percent of Total Training Hours - - - -				
Any formal training	100.0	100.0	100.0	100.0	100.0
Job Skills					
Management	11.3	0.8	12.2	48.6	13.2
Professional/Technical	12.2	21.0	0.0	5.4	13.2
Computer	19.8	13.8	38.8	10.8	27.8
Clerical/Administrative	0.5	1.6	0.0	0.0	0.0
Sales/Customer Relations	3.2	4.7	24.5	0.0	0.0
Service	0.0	0.0	0.0	0.0	0.0
Production/Construction	29.4	48.5	6.1	13.5	26.5
General Skills					
Basic Skills	0.0	0.0	0.0	0.0	0.0
Occupational Safety	8.4	4.3	18.4	0.0	13.9
Employee Health/Wellness	0.0	0.0	0.0	0.0	0.0
Orientation	13.4	4.7	0.0	21.6	4.0
Awareness	0.8	0.8	0.0	0.0	1.3
Comm./Development	0.0	0.0	0.0	0.0	0.0

Table 11

Percent of Total Training Hours Spent in Various Content Areas of Formal Training by Type of Industry Occurring Between May and October 1998

Type of Formal Training	Industry Type					
	Total	Construction	Finance, Insurance, Real Est.	Manu-facturing	Retail	Service
	(42)	(3)	(3)	(15)	(8)	(13)
Type of formal training:	- - - - Percent of Total Training Hours - - - -					
Any formal training	100.0	100.0	100.0	100.0	100.0	100.0
Job Skills						
Management	11.3	100.0	0.0	11.2	0.0	0.0
Professional/Technical	12.2	0.0	33.3	20.0	3.5	27.2
Computer	19.8	0.0	66.7	12.5	0.0	38.7
Clerical/Admin.	0.5	0.0	0.0	0.0	3.5	0.0
Sales/Customer Relations	3.2	0.0	0.0	0.9	7.0	10.2
Service	0.0	0.0	0.0	0.0	0.0	0.0
Production/Construction	29.4	0.0	0.0	37.8	36.5	0.0
General Skills						
Basic Skills	0.0	0.0	0.0	0.0	0.0	0.0
Occupational Safety	8.4	0.0	0.0	11.2	0.0	8.5
Health/Wellness	0.0	0.0	0.0	0.0	0.0	0.0
Orientation	13.4	0.0	0.0	6.5	49.6	10.2
Awareness	0.8	0.0	0.0	0.0	0.0	5.1
Comm./Development	0.0	0.0	0.0	0.0	0.0	0.0

Support for Formal Training

Research Questions 3.

How much are Centre County's largest private employers expending on formal training of their workforce?

From the questionnaire, information was collected on some of the direct costs associated with providing formal training. These costs include the dollar amount spent in 1997 on the wages and salaries of in-house training personnel as well as fees paid to outside training companies, tuition reimbursement, and contributions to outside training funds. These appear to be the major component of training costs. The study did not attempt to collect data on other direct costs such as equipment payments, supplies, travel, facilities, or wages and salaries for the time employees spent in training-related activities.

Table 12 provides the findings on selected training expenditures based on the size of establishments. The range for each expenditure is provided under the mean. Overall, the survey found that in 1997 an average of $183 per employee was spent on wages and salaries of in-house trainers, $65 per employee on outside trainers, $58 per employee for tuition reimbursement, and $12 per employee for contributions to outside training funds.

As seen in Table 12, establishments in every size category spent the most dollars on wages and salaries (both full-time and part-time) of in-house trainers. Across all sizes of establishments, those with 401-700 employees spent the most dollars in every expenditure category.

Tuition reimbursement tended to increase with the size of the establishment, with the exception of establishments with more than 700 employees. Firms in this category spent $79 per employee on tuition reimbursement, slightly more than those establishments with 251-400 employees ($74).

There does appear to be an increase in payments to outside trainers based on establishment size. Establishments with 401-700 employees spent the most on outside

trainers at $96 per employee compared to establishments with 251-400 employees who spent the least at $44 per employee.

The only establishments not reporting contributions to outside training funds were those with 700 or more employees.

Table 12

Mean and Range for Selected Expenditures ($ Dollar Value) per Employee by Size of Establishment for the 1997 Calendar Year

Type of Support	Total (42)	Size of Establishment: 100-250 employees (18)	251-400 employees (9)	401-700 employees (8)	700+ employees (7)
Tuition reimbursement	$58	$26 ($0-$120)	$74 ($13-$181)	$92 ($0-$353)	$79 ($10-$213)
Wages and salaries of in-house trainers	$183	$232 ($0-$866)	$117 ($0-$177)	$241 ($33-$824)	$220 ($74-$365)
Payments to outside trainers	$65	$87 ($0-$357)	$44 ($27-$65)	$95 ($43-$163)	$56 ($0-$112)
Contributions to outside training funds	$12	$2 ($0-$10)	$4 ($0-$13)	$44 ($0-$172)	$0 ($0)
Subsidies for training received from outside source	$52	$0 ($0)	$0 ($0)	$0 ($0)	$65 ($0-$235)

Numbers in ( ) reflect the actual range.

Table 13 provides the findings on selected training expenditures, based on industry type. The range for each expenditure is provided in addition to the mean. Once again, wages and salaries of in-house trainers were the largest training expenditures. The retail industry expended the most on salaries and wages at $298 per employee. Construction firms spent the least on salaries and wages with only $33 spent per employee.

The finance, insurance, and real estate industries spent the most on outside trainers and also made a significantly higher contribution to outside training funds by spending

$172 per employee. It should be noted that only three reporting establishments fell into this category.

Establishments in the retail industry spent the most on tuition reimbursement at $99 per employee. The construction industry spent the least on tuition reimbursement at only $7 per employee.

Table 13

Mean and Range for Selected Expenditures ($ Dollar Value) per Employee by Industry for the 1997 Calendar Year

	Industry Type					
Type of Support	Total (42)	Construction (3)	Finance, Insurance, Real Est. (3)	Manu-facturing (15)	Retail (8)	Service (13)
Tuition reimbursement	$58	$7	$9	$48	$99	$36
		($7)	($9)	($0-$181)	($0-$353)	($0-$213)
Wages and salaries of	$183	$33	$54	$210	$298	$230
in-house trainers		($33)	($54)	($0-$594)	($8-$824)	($0-$866)
Payments to outside	$65	$58	$163	$109	$38	$64
trainers		($58)	($163)	($0-$357)	($0-$118)	($3-$213)
Contributions to outside	$12	$0	$172	$1	$1	$3
training funds		($0)	($172)	(0-$10)	($0-$4)	($0-13)
Subsidies for training	$52	$0	$0	$28	$0	$0
received from outside		($0)	($0)	($0-$235)	($0)	($0)
source						

Numbers in ( ) reflect the actual range.

Trends Between Business Characteristics and Support for Formal Training

Research Question 4.

Is employer-provided formal training support varied across differing business characteristics?

Tables 14-17 show that the number of hours of formal training per employee, in general, seems to be no higher among establishments with particular employee benefits and specific workplace practices than it is on average for all establishments. The exceptions to this is in establishments offering employee wellness programs in the 100-250 employee category. These firms provided 3.6 hours of training per employee compared to 1.3 hours per employee in the total population. In the same size category, firms with peer review and quality circles provided 3.3 and 2.9 hours per employee, respectively.

When investigating the number of hours with respect to employee benefits and workplace practices based on industry type, manufacturing firms offering employer-financed childcare provided 3.3 hours of training per employee. Within retail establishments, 3.8 hours were provided in firms using telecommuting and 4.0 hours each in both establishments with employee wellness programs and job rotation practices.

Table 14

Mean Number of Hours of Formal Training per Employee by Size of Establishment and Employee Benefits Occurring Between May and October 1998

Characteristic	Size of Establishment				
	Total (42)	100-250 employees (18)	251-400 employees (9)	401-700 employees (8)	700+ employees (7)
Content Area	- - - - Mean Hours per Employee - - - -				
Any formal training	3.7	6.4	1.0	1.3	2.5
Establishments providing:					
Paid vacation	1.0	1.4	0.6	0.5	1.2
Paid sick leave	1.1	1.8	0.6	0.5	1.2
Health care benefits	1.0	1.6	0.6	0.5	1.2
Employee assistance program	1.1	1.9	0.6	0.6	1.2
Employee wellness program	1.3	3.6	0.6	0.3	1.2
Pension plan	1.0	1.8	0.6	0.5	0.7
Profit sharing	1.3	2.0	0.5	0.4	2.1
Flexible work schedules	0.9	1.4	0.5	0.0	0.3
Telecommuting	0.1	1.5	0.1	0.0	0.0
Employer-financed child care	1.9	1.9	0.0	0.0	0.0
Paid parental/family leave	1.2	1.5	0.8	0.0	0.0

Table 15

Mean Number of Hours of Formal Training per Employee by Size of Establishment

Workplace Practices Occurring Between May and October 1998

Characteristic	Total (42)	Size of Establishment: 100-250 employees (18)	251-400 employees (9)	401-700 employees (8)	700+ employees (7)
Content Area		- - - - Mean Hours per Employee - - - -			
Any formal training	3.7	6.4	1.0	1.3	2.5
Establishments providing:					
Pay increases linked to new skill	1.2	2.8	0.7	0.7	0.3
Employee involvement in					
tech. & equip. decisions	0.8	1.6	0.5	0.6	0.7
Job rotation	1.1	1.7	0.6	0.5	2.2
Just-in-time inventories	0.1	1.8	0.5	0.3	1.5
Peer reviews	0.9	3.3	0.1	0.6	0.9
Quality circles	0.1	2.9	0.5	0.3	1.5
Total quality management	1.2	1.4	0.6	0.0	1.5
Self-directed work teams	0.4	0.7	0.5	0.3	0.3

Table 16

Mean Number of Hours of Formal Training per Employee by Industry and Employee Benefits Occurring Between May and October 1998

Characteristic	Total	Industry Type: Construction	Finance, Insurance, Real Est.	Manu-facturing	Retail	Service
	(42)	(3)	(3)	(15)	(8)	(13)
Content Area		- - - - Mean Hours per Employee - - - -				
Any formal training	3.7	0.9	0.2	3.0	3.2	4.1
Establishments providing:						
Paid vacation	1.0	0.9	0.3	1.4	1.4	0.6
Paid sick leave	1.1	0.9	0.3	1.6	1.7	0.4
Health care benefits	1.0	0.9	0.3	1.4	1.4	0.6
Employee assistance program	1.1	0.0	0.0	1.6	0.6	0.4
Wellness program	1.3	0.0	0.3	1.6	4.0	0.5
Pension plan	1.0	0.9	0.3	1.1	1.4	0.6
Profit sharing	1.3	0.0	0.3	1.6	1.7	0.5
Flexible work schedules	0.9	0.0	0.0	0.9	1.9	0.5
Telecommuting	0.1	0.0	0.0	0.6	3.8	0.9
Employer-financed child care	1.9	0.0	0.0	3.3	0.7	0.0
Paid parental/family leave	1.2	0.0	0.0	1.7	0.0	0.4

Table 17

Mean Number of Hours of Formal Training per Employee by Industry and Workplace Practices Occurring Between May and October 1998

Characteristic	Total (42)	Industry Type: Construction (3)	Finance, Insurance, Real Est. (3)	Manu-facturing (15)	Retail (8)	Service (13)
Content Area	---- Mean Hours per Employee ----					
Any formal training	3.7	0.9	0.2	3.0	3.2	4.1
Establishments providing:						
Pay increases linked to new skill	1.2	0.9	0.0	2.1	1.9	0.7
Employee involvement in tech. & equip. decisions	0.8	0.9	0.3	1.0	1.5	0.5
Job rotation	1.1	0.9	0.3	1.3	4.0	0.5
Just-in-time inventories	0.1	0.0	0.0	1.3	2.3	0.3
Peer reviews	0.9	0.0	0.0	1.0	0.3	0.0
Quality circles	0.1	0.0	0.3	1.7	2.4	2.5
Total quality management	1.2	0.0	0.0	1.5	0.7	0.5
Self-directed work teams	0.4	0.0	0.0	0.7	0.1	0.3

A number of other employment practices were investigated in this study. It was found that mentoring programs were offered in 48 percent of the establishments. Career development plans are available in 28 percent of the establishments and apprenticeship training is offered in only 20 percent of those establishments interviewed.

Training resource centers are available to employees in 13 percent of the establishments. Only one establishment reported that they do not offer training advice to

employees. Establishments provide financing for conference and seminars in 95 percent of the cases.

Establishments with at least 10 percent of their workforce classified as part-time provided an average of 1.3 hours per employee compared to an average of 0.4 hours for businesses with less than 10 percent of workers classified as part-time workers.

Wages and salaries of in-house trainers were the largest expenditure category in all establishments. Establishments with some, but less than ten percent of their employees being part –time spent the most in every spending category except contributions to outside training funds. In this category, establishments with ten or more percent of their workforce being part-time contributed substantially more per employee to outside training funds at $38 per employee compared to $1 in all other establishments.

Table 18

Selected Expenditures in the 1997 Calendar Year per Employee by Proportion of Part-time Employees (N=42)

Characteristic	N	Tuition Reimburse-ment	Wages and Salaries of In-house Trainers	Payments to Outide Trainers	Contributions to Outside Training Funds
All Establishments	(42)	$58	$183	$65	$12
Proportion of Employees Classified as Part time					
None	(28)	$79	$209	$69	$1
1-9.9%	(2)	$146	$372	$74	$1
10% or more	(12)	$23	$146	$83	$38

The study revealed that in the past three years, employers have increased the amount of training they are providing or financing. Nearly 85 percent of establishments increased the proportion of employees who have received training. No establishment indicated a decrease, and 15 percent had no change.

Almost one-half (46 percent) of the establishments reported that they have no full-time training personnel; 25 percent indicated that they had no change in the number of in-house trainers from three years ago; and 20 percent indicated that they have increased the number of in-house trainers.

Most (77 percent) establishments indicated an increase in the amount they spend on training, and only 8 percent showed a decrease in expenditures for training.

When investigating the topic of training providers, 95 percent of the establishments reported that their establishment provides training. Seventy-five percent of the establishments interviewed reported they seek training from other firms. Parent companies and product suppliers were the next most frequently reported sources with 53 percent of the interviewed establishments reporting these entities. Educational institutions were the next most common source of training with community colleges and other educational institutions being reported in 30 percent and 35 percent of the establishments, respectively. Only 10 percent of the establishments reported unions as a source of training providers.

Table 19

Reported Changes in Formal Training Programs over the Last 3 Years by Selected Characteristics and Establishment Size (N=42)

Characteristic	Total (42)	100-250 employees (18)	251-400 employees (9)	401-700 employees (8)	700+ employees (7)
Proportion of establishments reporting that the percentage of employees who received formal training has:					
Increased	84.6	86.7	81.8	71.4	100.0
Decreased	0.0	0.0	0.0	0.0	0.0
No change	15.4	13.3	18.2	28.6	0.0
Proportion of establishments reporting that the number of full-time training personnel on the payroll has:					
Increased	20.5	33.3	0.0	14.3	33.3
Decreased	7.7	0.0	9.1	14.3	16.7
No change	25.6	20.0	36.4	14.3	33.3
No full-time training personnel	46.2	46.7	54.5	57.1	16.7
Proportion of establishments reporting that the amount of money spent on formal training has:					
Increased	76.9	93.3	63.6	71.4	66.6
Decreased	7.7	0.0	18.2	0.0	16.7
No change	15.4	6.7	18.2	28.6	16.7

Summary

Research Question 1 - How much formal training are Centre County's largest private employers providing? An average of 3.7 hours per employee of formal training was provided during May through October 1998. An average of 0.4 training activities was provided to each employee. The smallest establishments (100-250 employees) provided the most formal training with an average of 6.4 hours per employee. Establishments in this size category also provided the most training events per employee with 0.9 events being offered during this reference period.

When analyzing the information based on industry type, it was found that the service, retail, and manufacturing industries provided the most hours of formal training and the most number of formal training events.

Research Question 2 - What are the most common types of formal training being provided by Centre County employers? The survey revealed that most establishments are providing less than one hour of training within each training content area. Production/construction training was offered more than any other type of training at 0.9 hours per employee. Professional/technical and orientation training were the next most frequent types of training provided with 0.5 hours per employee each. No service, basic skills, employee health/wellness or communications/development training was provided by any reporting establishments.

When investigating the frequency of activities, computer training was offered more than any other content area with 12 events being offered. This was followed closely by production/construction and safety training, with 11 events offered in each area.

Training in production/construction accounted for the largest number of hours with 218 hours being provided. Computer training was the next largest based on total number of hours with 146.5 hours being provided.

Research Question 3 - How much are Centre County's largest private employers expending on formal training of their workforce? During 1997, wages and salaries of both full-time and part-time in-house trainers accounted for the largest spending category with $183 per employee. Establishments spent $58 per employee on tuition reimbursement. $65 per employee on outside trainers, and $12 per employee on contributions to outside training funds. Tuition reimbursement and payments to outside trainers tended to increase with the size of the establishment.

Research Question 4 - Is employer-provided formal training support varied across differing business characteristics? Although there are a few exceptions, in general, the number of hours of formal training per employee seems to be no higher among establishments with particular employee benefits and workplace practices compared to the average among all establishments. This appears to be true both when investigating the information based on size of establishment and when based on industry type.

Chapter V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The purpose of this research study was to determine the amount of employer-provided training within the largest private establishments in Centre County, Pennsylvania. The study attempted to identify the incidence, intensity, and expenditures related to employer-provided training.

The study also investigated how the incidence and intensity of training are related to a number of establishment characteristics such as size, change in number of employees, industry type, part-time employment, the adoption of alternative workplace practices, and various employee benefits.

The study was focused on establishments ranked as the top fifty by the Bureau of Labor Statistics. After eliminating the public establishments and those who either could not be identified or who chose not to participate, eight additional establishments were identified using the previous ranking report by the BLS. These additional establishments, prominent employers in the county, allowed the investigator to work with an adjusted target population.

A review of the literature reveals that employer-provided training is a critical issue in nearly every sector of our society. There is universal agreement that employers should be investing into their human capital. There are a number of reasons why people believe such investment is important. Many reasons are centered around the issue of U.S. workers not being adequately trained to be competitive in global markets a concern about meeting the challenges associated with new technology, and the decline of real wages in less-educated workers.

The literature further indicates that there is little available data regarding the amount of formal employer-provided training. One reason for a lack of quality data is that there

seems to be no universally accepted definition for the term "training." Because of this lack of information, estimates vary widely between the various studies that have been conducted. To date, the Bureau of Labor Statistics conducted the most comprehensive study dealing with the topic of employer-provided training for the Employment Training Administration of the U.S. Department of Labor in 1995. The intent of the Survey of Employer-Provided Training (SEPT95) was to uncover representative data on current training practices of employers. The findings of the SEPT95 study, which include information on both formal and informal training, now serve as a benchmark for national data.

Using a validated instrument, data was collected from the fifty largest private establishments in Centre Country, Pennsylvania, as identified by the Bureau of Labor Statistics. A questionnaire that focuses on training programs and expenditures as well as workplace practices of the establishments served as an interview guide when meeting with individual establishment representatives. The information on the questionnaire was gathered using a two-phase approach. The initial information, including details on establishment characteristics, training practices, and workplace programs was collected during a short, 30-minute interview with the training director, human resource manager, or establishment owner. The interviewer provided the company representative with two additional forms to be completed and returned within the following two weeks. The first form requested information regarding the number of employees in various job categories, employee turnover rates, and information on training budget and expenditures. The final portion of the information gathered involved completion of a training activity worksheet that was used to document typical training activities for a two-week time frame.

Conclusions

Extent of Formal Training.

The results of this study found that Centre County employers allocate time and resources to training their workforce. Overall, an average of 3.7 hours per employee of formal training were provided or financed between May and October 1998. Both the number of formal training events, which averaged 0.4 events per employee, and the number of hours tended to be higher in the smallest establishments. Establishments with 100-250 employees provided the most formal training to their employees on average with 6.4 hours per employee. It should be noted that 43 percent of the reporting establishments fell into this category of 100-250 employees.

The fact that the smallest establishments were providing the most training was surprising because it would be expected that larger establishments provide more formal training due to economies of scale. The total cost of training may not increase much as the number of trainees increases, because the cost of hiring a trainer and developing a curriculum is relatively fixed.

The service, retail, and manufacturing industries provided the greatest hours of formal training with an average of 4.1, 3.2, and 3.0 hours per employee, respectively. The construction and finance, insurance, and real estate industries provided the fewest hours of formal training per employee with an average of 0.9 and 0.2 hours, respectively. Service, retail, and manufacturing industries also provided the most number of formal training events per employee.

It is difficult to draw a conclusion as to whether industry type is a factor in the amount of employer-provided training that is provided. Although the service, retail, and manufacturing industries provided the most hours of training, they also have the largest presence in Centre County.

Content of Training.

No training in the areas of service, basic skills, employee health/wellness, or communications/development was provided in any of the reporting establishments. After discussion with individual establishments, it was learned that, for the most part, employees are not hired into establishments if they do not already possess strong basic skills. Further, most employers indicated that job skills and general skills training that are either mandated by state and federal agencies or directly linked to increased production are the up most of importance. Nearly every establishment indicated that they continually work on improving communications; however, no communications/development training was provided.

Overall, production/construction training accounted for 29.4 percent of all reported training. Computer training was the next largest content area, representing 19.8 percent.

Most establishments provided less than one hour of formal training in each of the content areas. Although production/construction training represented the highest amount of training, it accounted for only 54 minutes of training per person in the six-month reference period. Approximately 30 minutes per employee of training were provided in both the professional/technical and orientation areas.

Computer, production/construction, and safety training were the most frequently offered training types. These findings make sense given the trends of the times. The information age has forced businesses to incorporate information technology into their work practices, and with the constant changes and updates, computer training would seem to be a continuous requirement.

The Centre County region is comprised of many manufacturing firms that include production work. It is not surprising to find that production/construction training was frequently offered by employers.

Further, it is not surprising that safety training is offered frequently. Various federal and state agencies mandate periodic safety training. In addition, insurance companies often offer relief on expensive premiums based on the amount of safety training that is provided.

Support for Formal Training.

Wages and salaries of both full-time and part-time in-house trainers was the largest reported training expenditure among all establishments. During 1997, wages and salaries of both full-time and part-time in-house trainers accounted for $183 per employee. Establishments spent $58 per employee on tuition reimbursement, $65 per employee on outside trainers, and $12 per employee on contributions to outside training funds. Tuition reimbursement and payments to outside trainers appear to increase with the size of the establishment.

Although the largest reported training expenditure was in the area of wages and salaries for in-house trainers, 46.2 percent of all participating establishments reported that they had no full-time training personnel on their payroll. In the largest firms (more than 700 employees), only 16.7 percent of the firms reported that they had no full-time training personnel.

Trends Between Business Characteristics and Support for Formal Training.

Although there are a few exceptions, in general, the number of hours of formal training per employee seems to be no higher among establishments with particular employee benefits and workplace practices compared to the average among all establishments. This appears to be true both when investigating the information based on size of establishment and when based on industry type.

Overall Conclusions.

The 1995 Bureau of Labor Statistics study showed that the incidence, intensity, and expenditures related to employer-provided training vary, predictably, based on establishment size and industry type. That study also revealed that establishments that offer more employee benefits and a broader spectrum of workplace practices tend to provide or finance more training.

Unlike the BLS study, the findings from this research do not indicate any clear factors that increase the incidence, intensity, and expenditures of training. In addition, a

wide variation exists within establishments of similar size and industry type. Due to the distribution of study participants between size categories and industry types; it is difficult to draw conclusions for general trends.

Establishments with 100-250 employees appear to offer more training (6.4 hours per employee) than the average of 3.7 hours. However, establishments in this size category accounted for 43 percent of the total population. Further, service establishments appear to offer more training than the average of other industries with 4.1 hours per employee being provided. Similarly, service establishments represent 31 percent of the entire population.

In the opinion of the researcher, the two-week timeframe for collection of training log data allowed for a significant margin of error. The wide range of industries and the schedule in which they offer training has the potential to vary greatly. Although the methodology for this study paralleled the BLS 1995 study, a longer collection period may produce more representative results.

The findings regarding employer-provided training uncover some areas of concern. In Centre County, Pennsylvania, employees in the larger establishments are less likely to receive training than their counterparts who work in smaller establishments. The National Household Education Survey (Kim, Collins, Stowe & Chandler, 1995) revealed that the gap in training between workers with low levels of education and those with high levels of education is rapidly widening. Continuation of this trend suggests that works who are employed with large firms and have lower levels of education will be disadvantaged in an environment where high skill is the leveraging agent.

Relationship to BLS SEPT95

At first glance, one might be tempted to compare the results of this study with the BLS Study on Employer-Provided Training of 1995. Although the study was conducted using the same instruments and methodology, it would be unfair to do a flat out comparison of the two. The most obvious difference deals with the population. This research involved a census of the top employers in Centre County, Pennsylvania. Although

the establishments included in this population came from varying industries, it was not nearly as widespread and evenly distributed as that of the BLS study. For example, this research had no representation from the mining, transportation and public utility, or wholesale trade industries. In addition, the BLS study involved visits to more than 1,000 private nonagricultural business establishments. This provided a significantly larger population to study.

The BLS study classified establishments into five employment classes based on number of employees. These categories were slightly different from the ones used in this study due to the maximum number of employees in Centre County, Pennsylvania establishments. The largest establishment included in this study employed 1,200 individuals. The largest establishment in the BLS study employed more than 5,000 employees.

Factors such as labor turnover, employment growth and the use of contract workers were investigated by the BLS to determine if any relationship between these characteristics and the frequency and incidence of employer-provided training existed. Consequently, the BLS was able to draw the conclusion that there are relationships between these factors. In an attempt to study these same questions on a local basis, similar data was gathered. Upon analyzing the data, it was found that little differences existed between the various firms regarding labor turnover, employment growth, and contract worker use; therefore, not allowing analysis based on these factor.

The BLS study findings indicate that employees in establishments with 50 or more workers received an average of 10.7 hours of formal training in May through October 1995. The number of formal training activities averaged 2.1 per employee during this six-month period. The findings of this study indicate that employees in Centre County, Pennsylvania establishments with 50 or more workers received an average of 3.7 hours of formal training in May through October 1998. The number of formal training activities averaged 0.4 per employee during this six-month period.

Aside from the overall total figures, the biggest difference in findings comes from the amount of training provided in the various employee size categories. The BLS study found that during the six-month reference period, smaller establishments provided less formal training to their employees on average than larger establishments. Employees in smaller establishments also participated in the fewest formal training activities. The results of the Centre County study found the opposite to be true. The smallest establishments participating in the study provided the most formal training to their employees on average with 6.4 hours per employee.

Recommendations for Future Academic Research

Although the findings of this study provide a baseline for future research, many questions remain. The following recommendations are made for future academic research regarding the types and amount of employer-provided training.

- Apply survey methods and questions to other geographic areas of Pennsylvania and/or the country.
- Repeat this study after an amount of time has elapsed.
- Investigate establishments that fit the predetermined size categories but may not be included as one of the top fifty on the Bureau of Labor Statistic roster.
- Expand the population to include a larger number of establishments, including those with less than 100 employees.
- Conduct the same study using a population of non-private establishments.
- Further study specific types of formal training.
- Expand the study to include informal training activities.
- Investigate those establishments who are members of the local chamber of business and industry.
- Study one particular industry type or establishment size category in depth.

- Compare local unemployment data with the amount of employer-provided training, both locally and nationally, and determine if there is a correlation between them.
- Investigate the delivery mechanisms for formal employer-provided training.
- Further investigate the notion of corporate universities.

Recommendations for Nonacademic Practitioner

Training providers and establishments should look at the results of this study to determine the types of training that are in the biggest demand. This would provide a business opportunity that could benefit both the providers and the customers. Individual establishments could take advantage of such community-wide training opportunities without the overhead associated with conducting their own in-house training.

Local chambers of business and industry can use the data to gauge the training practices of local establishments and to plan training sessions, seminars, and workshops that might be of interest to local employers.

Training and professional organizations can use the information to determine organization goals and target audiences. Again, seminars, workshops and specific training sessions can be coordinated based on the information regarding formal training provided in this study.

Finally, other training providers can use the information presented here as a basis for a needs assessment. Looking at the frequency and types of training currently being offered would provide valuable business opportunities.

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Appendix A

SURVEY INSTRUMENT

INSTRUCTIONS

The questions in this survey ask for information about your "establishment," that is, your actual location. If your company has more than one site, please complete this survey only for your particular location. Please read the following questions and answer in the space provided.

PART 1: QUESTIONS ON TRAINING PRACTICES AND PROGRAMS

1. Which of the following training practices or programs does your establishment have, if any? *Check all that apply.*

   ❒ **Tuition reimbursement** *(payment of employees' tuition costs for work-related courses taken at educational institutions)*

   ❒ **Financing of conference attendance** or other off-site training *(payment for employee travel, hotel, fees, and other expenses when attending off-site conferences or training classes)*

   ❒ **A training resource center** *(a designated area within the establishment where training personnel, materials, and information are located)*

   ❒ **Training advice** provided to employees during their annual review *(requires supervisors to discuss the training needed by employees as well as the training opportunities available to them)*

   ❒ **Individualized training and career development plans** are designed jointly by an employee and a supervisor to outline the employee's career development objectives and associated training needs.

   ❒ **Occupation-specific training plans** outline the training needs and skill requirements of a particular occupation or job category.

   ❒ **Mentoring programs** match more experienced workers with less experienced workers to provide assistance and instruction on an as needed basis.

   ❒ **Apprenticeship training** is a formal process by which individuals become skilled workers through a combination of classroom instruction and on-the job training.

   ❒ **Contributions to union or association training funds** help finance training for employees. Funds may be overseen by a union, trade association or other business consortium.

   ❒ **None** of the above

PART 2: QUESTIONS ON FORMAL TRAINING IN THE LAST 12 MONTHS

2. In the last 12 months, in which of the following areas did your establishment provide or finance formal training for employees? *Check all that apply.*

   ❒ **Management training** is training in supervising and in implementing employment practices. Examples include training in conducting employee appraisals, managing employees, resolving conflicts, following selection/hiring practices, and implementing regulations and policies.

   ❒ **Professional and technical skills training** is training in professional areas such as engineering, nursing, accounting, science, law, medicine, training, education, business; or technical areas, such as drafting, electronics, and medical technology.

   ❒ **Computer procedures, programming, and software training** includes training in computer literacy, security, programming, use of standard commercial and other software, and methods for developing software applications.

- ❒ **Clerical and administrative support skills training** is training in areas such as typing, data entry, filing, business correspondence, and administrative recordkeeping, including budget and payroll.
- ❒ **Sales and customer relations training** is training in areas ranging from how to maintain or improve customer relations to specific selling techniques. Examples include training in how to deal with angry customers and information about specific product lines.
- ❒ **Service-related training** includes training in the traditional service occupations—food, cleaning, protective, or personal services. Examples include training in waiting tables, preparing food, using cleaning equipment, conducting security work, providing care for children or the elderly, tailoring, and barbering.
- ❒ **Production- and construction-related training** is training in areas such as operating or repairing machinery and equipment; manufacturing, assembling, distributing, installing, or inspecting goods; constructing, altering or maintaining buildings and other structures.
- ❒ **Basic skills training** is training in elementary reading, writing, arithmetic, and English language skills *(including English as a second language)*.
- ❒ **Occupational safety training provides** information on safety hazards, procedures, and regulations.
- ❒ **Employee health and wellness training** provides information and guidance on personal health issues such as stress management, substance abuse, nutrition, and smoking cessation.
- ❒ **Orientation training** introduces new employees to personnel and workplace practices, and to overall company policies.
- ❒ **Awareness training** provides information on policies and practices that affect employee relations or the work environment, including Equal Employment Opportunities (EEO), affirmative action, workplace diversity, sexual harassment, and AIDS awareness.
- ❒ **Communications, employee development, and quality training** is training in public speaking, conducting meetings, writing, time management, leadership, working in groups or teams, employee involvement, total quality management, and job reengineering.
- ❒ **No formal training** in the last 12 months.
- ❒ **Other** *(please describe)*

_____

3. Who conducted the formal training you checked in question 2? *Check all that apply.*
   - ❒ **This establishment**
   - ❒ **Parent company**
   - ❒ **Community colleges**
   - ❒ **Other educational institutions**
   - ❒ **Product suppliers**
   - ❒ **Other firms**, including private training companies
   - ❒ **Unions**, trade, or professional associations
   - ❒ **No formal training** in the last 12 months
   - ❒ **Other** *(please describe)*

_____

PART 3: QUESTIONS ON FORMAL TRAINING IN THE LAST THREE YEARS

4. In the last three years, did your establishment provide or finance any formal training for employees?

   ❒ **Yes**

   ❒ **No** (Go to question 8)

5. In the last three years, how has the percentage of employees who receive formal training changed?

   ❒ **Increased**

   ❒ **Decreased**

   ❒ **No change**

6. In the last three years, how has the number of full-time training personnel on the payroll of your establishment changed?

   ❒ **Increased**

   ❒ **Decreased**

   ❒ **No change**

   ❒ **No full-time training personnel** on establishment payroll in the last three years

7. In the last three years, how has the amount of money spent by your establishment on formal training changed?

   ❒ **Increased**

   ❒ **Decreased**

   ❒ **No change**

PART 4: QUESTIONS ON ESTABLISHMENT BENEFITS AND WORK PRACTICES

8. Which of the following benefits are offered at your establishment? Check all that apply.

   ❒ **Paid vacation** is leave from work for which an employee is paid in full or part.

   ❒ **Paid sick leave** is a short-term disability plan that continues all or part of an employee's income if he or she cannot work because of illness or injury. Sick leave is never contributory; the employer absorbs the entire cost.

   ❒ **Health care benefits** are benefits that pay for or provide medical, dental, vision, and related services through one or more plans. Benefits may be completely financed by the employer or jointly financed by the employer and employees.

   ❒ **An employee assistance program** is a structured plan, independent of health insurance, that provides referral and counseling services concerning alcoholism, drug abuse, marital difficulties, financial problems, emotional problems, and legal problems.

   ❒ **An employee wellness program** is a structured plan, independent of health insurance, that offers two or more of the following benefits: smoking cessation clinics, exercise/physical fitness programs, weight control programs, nutrition education, hypertension tests, periodic physical examinations, stress management courses, back care courses, and life style assessment tests.

- ❒ **Pension plans** provide income for employees at retirement. Plans may be either defined benefit, with a formula for determining the amount of periodic income, or defined contribution (such as 401k), with a formula for employee and employer contributions to the plan.
- ❒ **Profit sharing** is a plan under which the company credits shares of company profits to participating employees. The amount may be available immediately or at retirement.
- ❒ **Flexible work schedules** allow employees to determine their own work hours within generally set parameters.
- ❒ **Flexible work site or telecommuting** is an alternate work plan which allows an employee to spend part of the work week performing duties at a location away from the traditional worksite, i.e., residence or a satellite office.
- ❒ **Employer-financed child care** is full or partial payment of the cost of child care. Employers may establish their own child care facilities or provide funding to use other facilities.
- ❒ **Paid parental/family leave** is paid leave given to an employee to care for a newborn child, care for a sick child or other family member, handle an adoption, or other family-related reasons.
- ❒ **None of the above**

9. Which of the following work practices are used at your establishment? *Check all that apply.*
   - ❒ **Pay increases that are directly linked to mastering new skills.** This is an alternative to pay systems where compensation is linked to a particular job.
   - ❒ **Employee involvement in the firm's technology and equipment decisions** is an organizational policy in which employees have a say in technology and equipment purchase decisions that affect them.
   - ❒ **Job redesign or reengineering** is intended to increase worker performance and job satisfaction by increasing skill variety, significance of tasks, and worker autonomy.
   - ❒ **Job rotation** is a work design system where employees rotate among different jobs.
   - ❒ **Just-in-time inventories** are a method of inventory control and production where firms keep very small amounts of supplies on hand. Products are assembled from parts received "just-in-time once orders are received.
   - ❒ **Coworker review of employee performance** is a performance appraisal system in which employees' work performance is evaluated (at least in part) by coworkers.
   - ❒ **Quality circles** are voluntary groups of workers that meet regularly to come up with solutions to problems concerning people and productivity.
   - ❒ **Total quality management** is an organizational management approach in which the core ideas include doing things right the first time, striving for continuous improvement, and a devotion to understanding and meeting customer needs.
   - ❒ **Self-directed work teams** are small, groups of workers who have the authority to handle internal processes as they see fit in order to generate a specific group product, service, or decision.
   - ❒ **None of the above**

PART 5: QUESTIONS ON EMPLOYMENT CHARACTERISTICS

Questions 10–16 ask about employees at your establishment. In answering these questions, be sure to:

- Include all employees: full-time, part-time, temporary, seasonal, salaried, and hourly,
- Report for the pay period that includes the 12th of the month, and
- Write 0 in any blank in which your answer is zero.

10. ——— How many employees were on the payroll of your establishment during the pay period that includes the 12th of this month? If figures are not yet available for the pay period including the 12th of this month, please report for the pay period that included the 12th of last month.

11. ——— How many employees were on the payroll of your establishment three months ago? Please report for the pay period that included the 12th of the month.

12. ——— How many people did your establishment hire over the last three months? Be sure to include all workers hired including those who no longer work at your establishment.

13. ——— Of all employees reported in question 10, how many do you consider to be part-time workers?

14. ——— Of all employees you reported in question 10, how many are represented by a union agreement?

15. ——— How many contract workers or workers employed by temporary-help agencies did your establishment use during the pay period that you reported for in question 10?

16. Listed below are seven major occupational groups. Please fill in the blanks with the number of employees in each occupational group.

    —— **Managerial and administrative occupations** include top and middle-level managers, administrators, and executives whose primary duties are policy making, planning, staffing, directing or controlling the activities of the establishment.

    —— **Professional, paraprofessional, and technical occupations** include pereons concerned with the theoretical or practical aspects of fields (e.g., science, art, education, law, and business relations) where substantial post-secondary educational preparation, or equivalent on-the-job training or experience is required.

    —— **Sales and related occupations consist** of persons selling goods or cervices and other individuals directly related to sales.

    —— **Clerical and administrative support occupations** include persons performing clerical tasks, such as typing, filing, operating a computer, keeping records (personnel, stock, production, billing, etc.), and preparing and distributing mail.

    —— **Service occupations** include workers in occupations relating to protective service, food service, health assisting service, cleaning and building service, and personal service.

    —— **Production, construction, operation, maintenance, and material-handling occupations** consist of all skilled, semi-skilled, and unskilled workers performing machine and manual tasks involving production, construction, operation, maintenance, repair, and material-handling.

    —— **Agricultural, forestry, fishing, and related occupations** include workers concerned with agricultural production, forestry, and fishing. Also included in this group are agriculture-related workers, such as animal caretakers and groundskeepers.

    —— **Total** (should equal the number of employees in question 10)

PART 6: QUESTIONS ON TRAINING EXPENDITURES AND SUBSIDIES IN 1997

EXPENDITURES

17. ——— In 1997, how much did your establishment spend on tuition for courses employees took at educational institutions?

18. ——— In 1997, how much did your establishment pay to outside trainers or outside training companies that provided training to your employees?

19. ——— In 1997, how much did your establishment spend on wages and salaries of **full-time** training personnel, including trainers and their support staff? Full-time training personnel includes only those employees who spend all of their work time in training-related activities.

20. ——— In 1997, how much did your establishment spend on wages and salaries of **part-time** training personnel? Include wages and salaries **only** for the time spent in training-related activities.

21. ——— In 1997, how much did your establishment pay to your parent company for training it provided to your employees? (If you have no parent company enter NA.)

22. ——— In 1997, how much did your establishment contribute to funds specifically designated for training? Include any payments made to trade associations or union-sponsored training funds.

SUBSIDIES

23. ——— In 1997, how much did your establishment receive from your parent company to subsidize training provided to your employees? (If you have no parent company enter NA.)

24. ——— In 1997, how much did your establishment receive from other outside sources to subsidize training provided to your employees? Include any subsidies from governments, trade associations, or unions

PART 7: TRAINING LOG (MAKE COPIES AS NEEDED)

Think of a "typical" two week period. Please complete the following information for every **formal** training activity that would take place during that two-week period.

1. Please provide a name for the formal training activity.

   _____

2. _____ How many hours would the training session last?

3. _____ How many employees were trained in the activity?

4. Who conducted the training activity? Check all that apply.
   - ☐ Employee/s of your establishment who are full-time training personnel.
   - ☐ Other employee/s of your establishment
   - ☐ Employee/s of your company, but not your establishment
   - ☐ Individual/s from another company
   - ☐ Individual/s from a union or trade association
   - ☐ Other (please describe) _____

1. Please provide a name for the formal training activity.

   _____

2. _____ How many hours would the training session last?

3. _____ How many employees were trained in the activity?

4. Who conducted the training activity? Check all that apply.
   - ☐ Employee/s of your establishment who are full-time training personnel.
   - ☐ Other employee/s of your establishment
   - ☐ Employee/s of your company, but not your establishment
   - ☐ Individual/s from another company
   - ☐ Individual/s from a union or trade association
   - ☐ Other (please describe) _____

Appendix B

LETTER OF PERMISSION FROM THE PENN STATE OFFICE OF REGULATORY COMPLIANCE

PENNSTATE

Vice President for Research
Office for Regulatory Compliance

The Pennsylvania State University
212 Kern Graduate Building
University Park, PA 16802-3301

(814) 865-1775
Fax: (814) 863-8699
Website: www.research.psu.edu/orc/

Date: August 26, 1998

From: Karen J. English, Research Compliance Coordinator

To: Wendy Gilpin

Subject: Proposal for Use of Human Subjects in Research - Exemption **(#980730-00)**

Approval Expiration Date: August 26, 1999

"A Descriptive Analysis of Investment in Human Capital by Private Employers in Centre County, PA"

Your proposal for use of human subjects in your research has been reviewed and **approved for a one-year period.** Subjects in your research are at minimal risk.

Attached are confidential labels you can use to seal the envelopes that contain the original, signed informed consent forms obtained from the subjects of your study. These envelopes are then to be mailed to the address listed above. Contact this office if you need more labels.

Subjects must receive a copy of the informed consent form and the written explanation of your study that was submitted to this office for review.

By accepting this decision you agree to notify this office of (1) any additions or changes in procedures for your study that modify the subjects' risks in any way and (2) any events that affect the safety or well-being of subjects.

The University appreciates your efforts to conduct research in compliance with the federal regulations that have been established to ensure the protection of human subjects.

KJE/jlm

Attachments

cc: E. Farmer
E. Herr

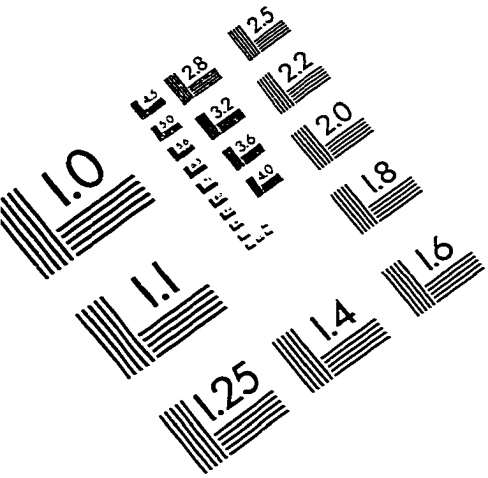
VITA

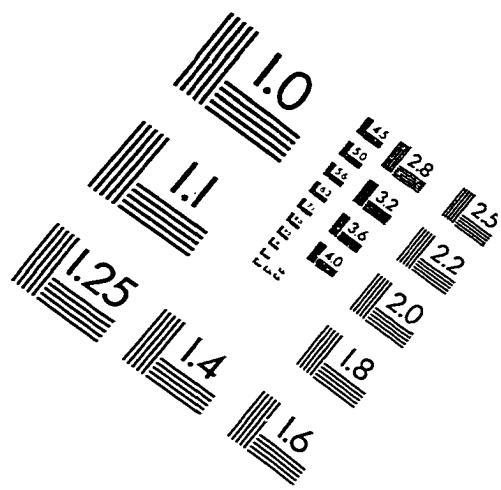
WENDY L. GILPIN

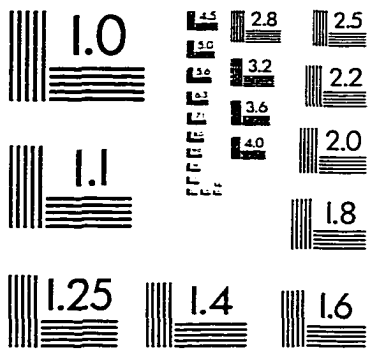
Wendy L. Gilpin is a graduate of Penn State University with degrees in Business Administration and Management Information Systems (MIS). She began employment with Penn State in 1984 and has held several positions, including program management of various administrative and educational programs.

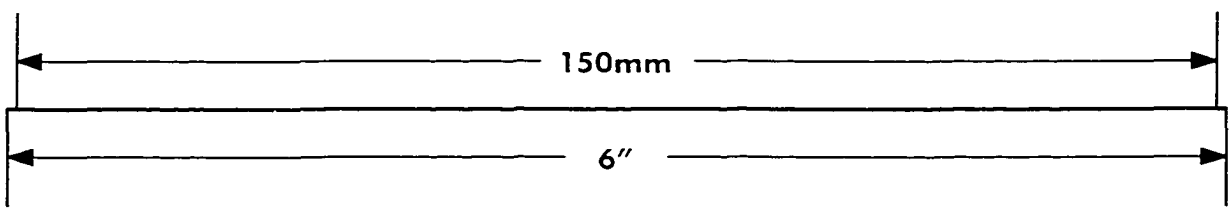
Currently, Wendy is a research assistant at Penn State's Applied Research Laboratory. Her research interest deals with the development of optimal methods to train a diverse workforce in the application of advanced technologies. She is working to develop metrics that will be used to correlate task complexity with human factors and investigate the effectiveness of alternative training methods. She has also initiated a research effort to establish requirements for undergraduate training in the use of intelligent design and concept development tools in a distributed, interactive team environment.

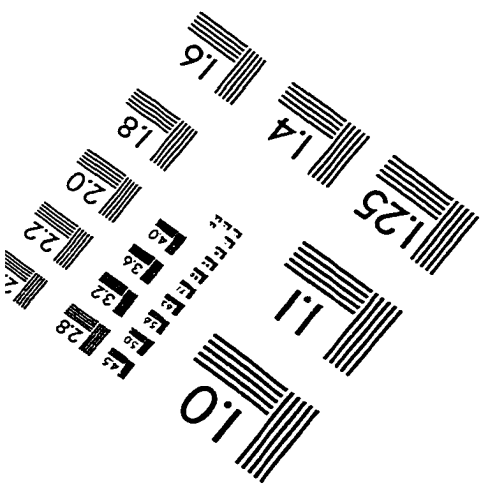
IMAGE EVALUATION TEST TARGET (QA-3)

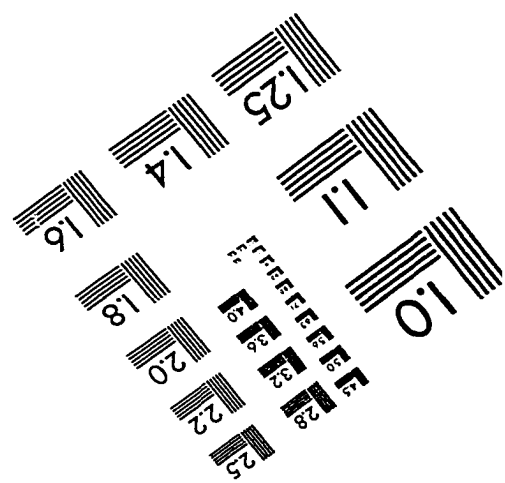












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