A Study of a Manufacturing Consortium

Pre-Employment Training Program

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TABLE OF CONTENTS

LIST OF TABLES

TABLE

LIST OF APPENDICES

APPENDIX

CHAPTER 1
INTRODUCTION

The southern Ohio and northern Kentucky area is a region characterized by an economy in transition from the manufacturing sector to the service and retail sectors (Scioto County Government, 1998-00), which is causing various pressures on the workforce there. For example, the unemployment rate for Scioto County, Ohio, a centrally-located county in the region, was 9.7% in 1996, or almost twice the unemployment rate for the state of Ohio (Scioto County Government, 1998-00). Despite the fact that manufacturers in the area reported no difficulty in obtaining a satisfactory quantity of non-experienced assembly-line workers (ERISS Corporation, 2000), five local manufacturers were not satisfied with the quality of the workers they were hiring, nor with the retention rates of those employees.

Therefore, the Ohio River Valley Pre-Employment Training (ORVPET) program was created to teach work skills to individuals in southern Ohio and northern Kentucky prior to employment. The ORVPET program was designed by those five employers, in cooperation with the Scioto County (Ohio) Joint Vocational School's Workforce Development Center, who formed a consortium to administer the program and oversee its development. The program is unusual among pre-employment training programs in that the training was not only designed and developed by employers, but it was also presented by employees of the consortium companies. The joint vocational school's role, although critical to the course offerings, is primarily supportive, providing facilities, materials, and networking opportunities with other pre-employment training efforts throughout Ohio.

This study will evaluate the effectiveness of the ORVPET program by comparing those employees who have completed the program to similar employees who have been hired through

normal hiring practices and did not participate in the ORVPET program. The employers are interested in the following areas of employee performance: job knowledge, work behavior, reliability, teamwork, safety practices, dependability, communications, and work quality.

Statement of the Problem

Despite the evidence that annual income increases and unemployment decreases with additional education (National Center for Education Statistics, 1999), in the southern Ohio/northern Kentucky region, and Scioto County in particular, only 8.5% of the population in the county in 1990 attained a bachelor's degree or higher (O'Bryant, 1997). Unemployment in the county stood at almost twice the state level in the mid-1990's (Scioto County Government, 1998-00), and the per capita income in 1994 was $14,811 (Scioto County Government, 1998-00), well above the poverty rate of $6,652 (O'Bryant, 1997, p. 324) but below the Ohio per capita income for that year of $20,883 (O'Bryant, 1997, p. 298).

A more recent study showed that Scioto County has 24% of its adult population functioning at a Level 1 literacy (National Institute for Literacy, 1998). Level 1 literacy means that these adults can usually perform such tasks as signing their names, locating the expiration date on a driver's license, or totaling a bank deposit entry but they cannot perform more difficult tasks such as locating their eligibility on a table of employee benefits, identifying and entering background information on a Social Security card application, or calculating the total cost of purchases on an order form. According to the study, these adults tend to be at a great disadvantage in our society.

Nevertheless, local manufacturers were hiring individuals with high school diplomas or even less education, while still offering the third highest weekly earnings in the area (Scioto County Government, 1998-00). Although statewide projections indicated that jobs in fabrication

and assembly would grow by only 0.3% between 1991 and 2000 (O'Bryant, 1997, p. 313), these manufacturers were hiring as many people as applied. However, the employers were dissatisfied with the quality of the workers they were hiring and the retention of those employees on the job.

To address these concerns, five local employers formed a pre-employment training consortium in 1997. The founding employers included: M & J Industries (welding and metal fabrication), Mitchellace (shoelace manufacturing), the Ohio Department of Natural Resources (state government agency), RHI Refractories America (refractories manufacturing), and Vinyl Kraft (vinyl replacement window manufacturing); M & D Cable Company (cable installation) joined the consortium at a later date. Together they developed and implemented a pre-employment training program which they believed would prepare these individuals to enter the workforce with a good understanding of these employment skills: the general responsibilities of having a job and the means to acquire specific job skills, the idea of appropriate work behavior, the need to be reliable and dependable on the job, the role of teamwork in a modern production environment, the importance of working safely, the skills that create effective communications in the workplace, and the companies' expectations of work quality. With these qualities, the employers felt that an employee would be successful in any of the consortium companies and have a realistic view of the world of work, which was expected to reduce employee turnover.

This program was developed and delivered to nine classes between 1998 and 2000. However, to date no effort has been made to evaluate the effectiveness of this program; that is, no assessment has been conducted to determine if the participants in the program were able to implement the skills they were taught and to become the desirable employees the employers were seeking.

Background of the ORVPET Program

The ORVPET program has been in place since January 1998, when the first class began, but development efforts began as early as August 1997, when the consortium members first met to discuss their needs for entry-level employees. Although the composition of the consortium has varied throughout the life of the program, a core group of five employers has provided continuity from the founding of the program to the present, and the emphasis has consistently been aimed toward preparing workers for a manufacturing environment.

The ORVPET consortium has the following vision and purpose:

VISION

The Ohio River Valley Consortium works to provide our area's workforce with a pre-employment training program that will meet the needs of progressive employers who can jointly commit to meet the demands of a quality work team environment in an effort to meet the needs of our customers and promote economic development.

PURPOSE

To train the workforce with skills that will enable them to enter the workplace prepared to meet the needs of our area's diverse employer base.

The representatives to the consortium typically are the human resources managers of the companies, although a plant manager and a quality assurance coordinator are among those who regularly represent their companies. The consortium meets weekly to keep track of the class participants' progress and to discuss any changes that may be needed to the program.

The program contained 84 hours of instruction, carried out for 4 evenings a week over a 6-week period. The training was divided into seven modules:

I.	Team Building and Problem Solving	15	hours
II.	Communication	20	hours
III.	Safety and Wellness	8	hours
IV.	Quality and Cost Control	14	hours
V.	Computer Literacy	3.5	hours
VI.	Personal Development	15.5	hours
VII.	Facility Tours	8	hours

The curriculum was built on the results of a consortium brainstorming session; each module was then refined and solidified through meetings of lead instructors for each module (usually a consortium representative) and company subject matter experts to identify the specific topics and activities that would be presented. In the spirit of continuous improvement, questionnaires to gauge the reaction of the participants to the class were completed at the end of each course offering. This feedback and any additional student comments were treated as suggestions for improvement and were incorporated into the training by the lead instructors as appropriate.

When the consortium companies identified a hiring need, a starting date for the ORVPET class was selected and for the next few weeks, the upcoming class was advertised via local newspapers and radio stations. In addition, social services agencies were encouraged to refer interested clients to the Scioto County Joint Vocational School (SCJVS), and anyone who had

called or been referred to the SCJVS for the ORVPET program was individually notified of the upcoming class. Approximately four to five weeks before the class starting date, a testing and orientation session was held at the SCJVS, which had adequate facilities to test a large number of people. Applicants completed a program application, an optional application sheet of demographic information, a form allowing the SCJVS to release their assessment scores to the ORVPET employers, and a self-addressed notification postcard so that they themselves could be informed of their eligibility for the class.

To be eligible for the ORVPET program, applicants had to pass a 10-panel drug test and pay a $20.00 application fee and $100.00 tuition. They also had to meet a minimum level on the Work Keys skill assessments (developed by The American College Testing Program (ACT)) in the following three areas: Reading for Information, Applied Mathematics, and Locating Information. These areas were determined through job profiling of entry-level positions at the consortium companies, and the requisite levels were the lowest of the findings among the consortium companies. Exceptions to the Work Keys skill levels were made if the applicant was one level below the requirement and agreed to remediate to the required level. This remediation was facilitated by the vocational school staff.

Participants graduated from the program after completing the training with one or fewer absences; a tardy in excess of 15 minutes counted as one absence. The participants also had to maintain a 70% average overall in the training to graduate. Successful graduates received a Certificate of Training certified by the State of Ohio. For those participants who met the graduation requirements but who had not remediated their Work Keys skill levels, a Letter of Attendance was awarded instead of a Certificate of Training.

Upon completing the training, participants were placed into a pool of potential employees eligible to be hired by the consortium companies. Preference was given to ORVPET participants in hiring of entry-level employees, but hiring could not be limited to ORVPET participants. Consortium companies retained their individual hiring policies, so if a high school diploma was required for employment by a particular company, for example, participants who did not have a diploma were not eligible for employment with that company. In addition, as a condition of the program, there was no obligation on either the employers or the participants to offer or receive employment at the conclusion of the class. In this manner, participants were given the freedom to choose their preferred employer, and employers could maintain their distinctive hiring practices.

After conducting eight classes with a total of 116 completers (both full graduates and participants who required Work Keys remediation), human resources managers began reporting difficulties contacting some of the participants in the hiring pool. In an effort to update the list of names and addresses of ORVPET completers, over the next few weeks the SCJVS secretarial staff attempted to call each person to see if they were still interested in employment with the consortium.

Using a standard list of four questions, the staff attempted to discover if the participants were working (and if so, where), or if they were still looking for work. The staff also asked the participants for one way that the ORVPET curriculum was helping them, and then verified that the participants received a recent mailing of the program newsletter, which also allowed the staff to verify addresses. Of the 116 participants, only 46 were able to be contacted by telephone. Of those, 35 were working, leaving only 11 people in the hiring pool. In addition, at least 7 of the

35 employees had been terminated for various reasons. These data began to raise questions about the training and how much the program participants benefited from the training.

At approximately the same time, one of the consortium employers completed a performance evaluation cycle and was able to prove to the employer's satisfaction that ORVPET participants were superior to non-ORVPET hires, in that the graduates missed fewer days than their counterparts and received better evaluations from their supervisors. In an attempt to see if those results were true for the other companies as well, the consortium developed a non-scientific survey tool that human resources managers or supervisors could use to document the progress of ORVPET participants compared to the expected progress of new hires after 6 months of employment. This data collection form evaluated employees in eight areas: job knowledge, work behavior, reliability, teamwork, safety practices, dependability, communications, and work quality. The eight areas were evaluated using a 6-point Likert scale, which included the following options: poor, below average, average, above average, superior, and not applicable. Sample definitions and examples of desirable performance in each area were agreed upon.

Although these definitions added some possibilities for comparisons, the consortium members had as their primary concern the justification of the program to each company's management, and not to compare the employees as a group across companies. Therefore, the ORVPET participants were compared to individual company norms and not to a universal standard. Only one company had completed the evaluations as of December 1999, but the results were positive.

In the human resources director's view, the nine ORVPET employees who had worked at least 6 months were above average in every category except absences. She attributed this exception to the organizational culture, particularly because the attendance records began well

and then dropped off the longer the participants worked. The human resources director surmised that the ORVPET program allowed consortium employers to bring better people into the workforce, but that the employers were not then grooming them on-the-job.

Throughout the program, the consortium representatives and the SCJVS staff had been informing other vocational trainers and community leaders of the program at various conferences and meetings. The ORVPET consortium's efforts were recognized in September 1998 when the consortium was one of seven finalists for the 1998 Seeds of Change Award, an annual award given by the Ohio's BEST Practices Initiative. BEST is an effort to identify substantive, innovative education improvements that can be customized to meet diverse needs in a wide range of Ohio schools and communities. The Seeds of Change award is a third-level award, given only after an award-winning program has been replicated successfully; earlier partnerships between the SCJVS, the Department of Human Services, and employers had won these preliminary awards. Although the program did not win, the consortium was honored to be a finalist for this prestigious award.

Purpose of the Study

Based on the interest being generated in the program and the initial indications that the program was successfully preparing participants for employment within the consortium, this study was developed to determine if a difference exists between employees who have completed the ORVPET program and employees who have not attended the ORVPET program.

Research Questions

Research Question 1: Is there a difference between the attendance records, consisting of absences and tardiness, of employees who have completed the ORVPET program and employees who have not attended the ORVPET program?

Research Question 2: Is there a difference between job knowledge reported by employees who have completed the ORVPET program and employees who have not attended the ORVPET program?

Research Question 3: Is there a difference between positive work behaviors reported by employees who have completed the ORVPET program and employees who have not attended the ORVPET program?

Research Question 4: Is there a difference between the reliability reported by employees who have completed the ORVPET program and employees who have not attended the ORVPET program?

Research Question 5: Is there a difference between teamwork skills reported by employees who have completed the ORVPET program and employees who have not attended the ORVPET program?

Research Question 6: Is there a difference between safety practices reported by employees who have completed the ORVPET program and employees who have not attended the ORVPET program?

Research Question 7: Is there a difference between the dependability reported by employees who have completed the ORVPET program and employees who have not attended the ORVPET program?

Research Question 8: Is there a difference between effective communications skills reported by employees who have completed the ORVPET program and employees who have not attended the ORVPET program?

Research Question 9: Is there a difference between the attention to work quality reported by employees who have completed the ORVPET program and employees who have not attended the ORVPET program?

Significance of the Study

Several other pre-employment training efforts are ongoing in Ohio and elsewhere, but the ORVPET program differs in the extensive involvement of the consortium companies in the training itself. The results of this study may be significant by indicating whether such an employer-driven training program prepares participants to enter or re-enter the consortium workforce.

In addition, as welfare legislation causes more adults with little or no experience to enter the workforce, the results of this study may be used to support the development of other pre-employment training programs in similar circumstances, and indicate areas where these programs can expect challenges that will need to be overcome.

Limitations of the Study

The findings of this study are limited to the ORVPET program and participants from January 1998 to December 1999. It is not possible to generalize the results of this pre-employment program to those of other employers, although the results may serve as a benchmark for similar programs.

In addition, the treatment group was primarily self-selected, since they chose to come to the orientation session, take the assessments, pass the drug test, and pay the fees. They may possess other personal characteristics which contributed to their successful employment. (One class, consisting entirely of Department of Human Services clients, was not self-selected but was filled based on the recommendations of the clients' employment counselors.) It is also possible

that the matched sample will neglect an important characteristic that could provide an alternate explanation, other than training, for the results. The survey method relies on self-reported knowledge, skills, and attitudes, introducing possible threats to the accuracy of the data; nevertheless, the accuracy of the self-reported data will be assumed in interpreting the results.

Sample size is another limitation of this study. Although experimental studies may be valid in controlled situations with as few as 15 subjects per group (Fraenkel & Wallen, 1996, p. 106), this study had only five subjects per group. Since the experimental group contained the entire available subject population, this limitation could not be alleviated.

Certain threats to internal validity exist which should be considered in this study. A location threat exists because the survey will be administered at each employing company. Differences in testing conditions may be exacerbated by the conditions placed by the employers on the data collection process. Employers have requested that the survey be conducted on-site during lunch, break, or prior to or just after the work day to avoid any interference in production. As perceived punishment, the subjects may feel pressured to finish in the allotted time, may want to "get it over with" so they can eat or leave, or may be tired after working a full shift.

The study may also be affected by data collector bias, as the researcher has taught the treatment group during the training and has had the opportunity to become acquainted with most of the participants.

Definition of Terms

The following terms were defined for use in this study:

Communications - Employee shares ideas with co-workers and management using clear, concise language and appropriate vocabulary. If necessary, employee can write a short memo

which can be easily understood. Employee demonstrates respect for other cultures and uses appropriate language with co-workers.

Dependability - Employee arrives at work on time and follows company attendance policy. If an absence is necessary, employee calls in before s/he is due at the work site, and vacations are scheduled enough in advance that alternative staffing can be arranged. Employee returns promptly from all breaks.

Job Knowledge - Employee has demonstrated an awareness of and can successfully apply all rules and regulations governing his/her performance on the job. Employee can carry out all tasks associated with the expected performance of the job in a manner satisfactory to the supervisor(s), and is able to apply those procedures effectively in unfamiliar situations.

Ohio River Valley Pre-Employment Training (ORVPET) Consortium – A group of six employers in Scioto County, Ohio and Greenup County, Kentucky, these manufacturers have combined their efforts with the assistance of the Scioto County Joint Vocational School Workforce Development Center to create a pre-employment training program for individuals in the area who are seeking employment with one or more of the consortium companies.

Pre-Employment Training - Instruction is provided prior to employment in an effort to make the participant more desirable in the hiring process. In this study, pre-employment training is provided by the hiring companies in an effort to prepare individuals who are entering or re-entering the consortium workforce.

Reliability - Employee's work is consistently delivered on time and employee meets or exceeds assigned quotas. Employee can be relied on to follow established procedures and to ask

questions to promote understanding of those procedures if in doubt. Employee remains in assigned work area during working hours.

Safety Practices - Employee consistently follows federal, state, and facility regulations for safe operation of machinery in the workplace. Employee uses safe techniques to lift or move items, and follows recommended ergonomic guidelines. Employee can explain how and when to submit an accident report. Employee actively participates in safety training or on a safety committee.

Teamwork - Employee has actively participated in at least one work team. While working on a team, the employee has demonstrated respect for other team members by allowing others to express their opinions, considering alternate points of view, or similar actions. Employee solicits feedback from other team members on his/her progress or contributions to the team. Employee remains goal-oriented, shares the credit for teamwork, and uses problem-solving skills.

Work Behavior - Employee shows initiative within the framework of the job and serves as a good example to others. Employee approaches assignments with enthusiasm and encourages others to view events in a positive light. Employee frequently exceeds the performance expected by the supervisor and has submitted suggestions (either verbal or written) to improve the production process, work environment, or other condition.

Work Keys Skill Assessments - Developed by The American College Testing Program (ACT), these written instruments assess examinees' proficiency in various work-related skill areas. There are eight assessment areas available: Reading for Information, Applied Mathematics, Writing, Listening, Teamwork, Observation, Applied Technology, and Locating Information. The assessments have been developed in accordance with the content validity standards required

by the EEOC's Uniform Guidelines. The assessments are criterion-referenced with respect to content domain; an individual's scores are measured against an established standard, specifically the proficiency level of a skill required to perform a particular job effectively. The assessments present workplace situations, problems, and materials for the examinees to respond to and/or solve. Most of the eight assessment areas are examined via written multiple choice questions, but videotapes and audiotapes are also used. The problems represent many common work situations and do not require prior job-specific knowledge. Examinees are assessed a skill level which indicates their proficiency in the testing area; individuals who score a level 4 can be expected to understand more complex scenarios than individuals who score a level 3 on the same test. These skill levels can then be matched against job profiles conducted by authorized ACT job profilers to evaluate whether the individual has the skills needed to perform the job or whether remedial training is required.

Work Quality - Employee consistently produces items which meet or exceed customer and company specifications. Employee draws attention to problems with machinery or materials, and suggests improvements where possible. Employee fills out required documentation completely and correctly.

Organization of the Study

This study is organized into five chapters. Following this introduction of the research problem, a review of relevant published literature is provided in Chapter 2. The methodology used to collect the data for this study is contained in Chapter 3. Chapter 4 describes the results of the analysis of the data and discusses possible explanations for those results, while Chapter 5 summarizes the study and provides recommendations and suggestions for further research. The appendices and references are included at the end of this study.

CHAPTER 2
REVIEW OF RELATED LITERATURE

Current literature on pre-employment training for adults which is sponsored and conducted by employers is limited in commonly available public sources of reference materials; obtainable information indicates that employer-sponsored training programs are often highly specialized. However, general programs on workplace literacy, as well as efforts to build a foundation of basic skills among employees and potential employees, are available throughout the United States. Included below is an introduction to workplace literacy concepts, followed by descriptions of representative training programs and the effectiveness of workforce training programs. These geographically diverse programs are then countered by a description of the pre-employment training efforts taking place in Ohio, which provide a regional backdrop for this study.

Workplace Literacy

According to the National Institute for Literacy, the definition of literacy has shifted in the 1990's to include more than the ability to read and use printed materials at an extremely basic level (National Institute for Literacy, 1998). Currently, literacy is defined more broadly to include problem-solving and higher-level reasoning skills. In the 1991 National Literacy Act, Congress defined literacy as "an individual's ability to read, write, and speak in English, and compute and solve problems at levels of proficiency necessary to function on the job and in society, to achieve one's goals, and develop one's knowledge and potential." To reflect this broad scope, the National Adult Literacy Survey (NALS), carried out by the U.S. Department of Education between 1988 and 1993, created three literacy scales: prose literacy (e.g. finding information in texts),

document literacy (e.g. completing forms), and quantitative literacy (e.g. interpreting graphs and charts). NALS then evaluated respondents on a literacy continuum which was divided into five levels, with Level 5 reflecting the highest skills and Level 1 reflecting the lowest skills. Nationally, 21% to 23% of the 191 million American adults aged 16 and older placed at Level 1, the lowest skill level. Even though these adults would be able to perform a variety of literacy and other tasks that their daily lives required, they would be at a great disadvantage in our society. All of the adults scoring at Level 1 displayed difficulty using certain reading, writing, and computational skills considered necessary for functioning in everyday life, and certainly in the workplace. Low literacy skills were found to be closely connected to poverty and the social problems related to living in poverty, including public assistance, employment status, and crime.

The NALS survey indicated that in the state of Ohio, 18% of the adult population placed at Level 1 literacy. Particularly, in Scioto County, where most of the ORVPET participants resided and where all but one of the consortium employers were located, 24% of the adult population (above the national average) was at Level 1 literacy. Clearly, this region could benefit from improved literacy in all three areas defined by the NALS study, to prepare these potential employees for the world of work.

Workplace literacy is of increasing concern to employers and educators, as evidenced by guidelines to set up a workplace education program published by the National Literacy Secretariat of Canada (Folinsbee, 1990/1994). Basic skills, such as reading, writing, math, and problem-solving skills, were seen to have an influence on important workplace skills, such as listening and oral communication, teamwork, leadership, self-direction and self-motivation, and computer skills. Workforce education

programs to upgrade these basic skills were deemed necessary to creating a highly skilled and adaptable workforce which could compete in a global economy. These programs could be the result of partnerships among business, labor, education, and government, or could be as simple as a tailored in-house training program, but all such programs should be based on organizational needs to be successful. Possible providers of workplace education programs include: community colleges, school boards, community literacy groups, labor unions, private training consultants, and in-house trainers. While this training may be conducted one-on-one, the most common method is to set up a separate workplace program with a trained adult educator or peer trainer who works with a group of participants. In-house training has the advantage of allowing the course participants to feel comfortable asking about specific individual needs or about referrals to community programs. No matter who presents the training, it should not single out employees in terms of their need to upgrade basic skills, nor should it use language such as "illiterate," which is pejorative and suggests a deficiency.

These guidelines echo the common theories of adult learning as expounded by Malcolm Knowles, K. Patricia Cross, and Stephen D. Brookfield. In Knowles' andragogical model of adult learning (1986), adults need to know why they need to know something before undertaking to learn it, and will invest considerable energy in determining the benefits of learning this thing and the consequences of not learning it before they begin. Knowles also postulates that adults are motivated to learn to the extent that they perceive the learning will help them to perform tasks or deal with problems that confront them in their life situations, as opposed to the subject-centered learning of children in school. Once adults feel this need to learn, Knowles suggests that the learning

environment for adults be characterized by physical comfort, mutual trust and respect, mutual helpfulness, freedom of expression, and acceptance of differences.

K. Patricia Cross (1984) looks at these ideas more discretely in her Characteristics of Adults as Learners (CAL) model, which has three continua: one for physical characteristics (aging), one for sociocultural characteristics (life phases), and one for psychological characteristics (developmental stages). Cross maintains that physical aging requires that educators of adults create a comfortable environment by paying more attention to transportation and delivery systems, greater illumination, less auditory confusion in the classroom, and slower speech in presenting new ideas. Regarding motivation, Cross urges educators to take advantage of "teachable moments," times when a learner is ready to learn, which are largely a function of the sociocultural continuum of life phases and indicate that a learner is motivated to learn tasks associated with the life cycle. While Cross acknowledges that these moments are not strictly tied to age, she relates the sociocultural continuum to societal expectations regarding age-appropriate behaviors for adult learners. Despite these expectations, she allows that it is possible for a 50-year-old adult to remain at a "childish" level of ego development while a 30-year-old adult may attain the highest level of ego maturity.

Stephen D. Brookfield (1986) also urges learning facilitators to take advantage of "teachable moments," noting that educational activities are the most meaningful for adults when the adults can make a direct connection between the learning and their past experiences or current concerns. Brookfield urges learning facilitators to create a relaxed environment by making an effort to individualize the curricula for the learners through considering the class, ethnicity, cultural conditioning, and personality characteristics of

the learners. Therefore, according to the theories of adult learning proposed by Knowles, Cross, and Brookfield, adults learn more effectively in a respectful environment where the participants are motivated, for whatever reason, to learn the training content.

A study of telecommunications workers participating in an education and training program at US WEST Communications (Averett, 1994) also emphasized the importance of self-directed study, even among employed learners. The program offered: career and education counseling; interests, values, and prior learning assessments; and financial assistance for participants to pursue courses of study of their own choosing at various educational institutions. After participating in this training, jointly sponsored by the company and the labor union, the participants claimed to feel much more in control over their own lives, with a sense of direction in their careers and a defined personal path to follow for the future.

In interviews of participants of short-term skill training programs, including adult basic education, held at a skill center sponsored by Portland Community College in Oregon (Cooper, 1996), the participants most often cited feelings of "connecting" with instructors and fellow students as a benefit of their training. Nevertheless, a study of student participation in on-site workplace training programs held for Wake County employers by Wake Technical Community College in North Carolina (Hilbert, 1995) suggested that adult participants in workplace training programs face barriers to participation. In this study, class participants most often cited the following difficulties: a lack of confidence that training would lead to promotions or raises, a lack of confidence that training would improve the lives of the participants, a lack of prior workplace training, and an employer requirement for participation.

A study of the attitudes of blue-collar workers toward skills training (Wilson, 1992) indicated that participants who were relatively new hires or who had been recently trained possessed more favorable attitudes toward skills training than other employees. In addition, participants who were older and possessed more job tenure were generally the least equipped, in terms of education and formal skills training, to go to another job outside of their company, and these participants also were more likely to be satisfied with their current employment. Although the study suffered from some stated reliability problems, it suggests that employees, as well as employers, may see formal skills training as necessary for job mobility.

The goal, therefore, of workplace literacy programs should be to provide the foundation skills identified by employers which the employees perceive they will need to function in a changing economic environment.

Workforce Training Programs

In such a changing economic environment, workforce training programs are common. Typically, such programs train the participants in job-specific skills, such as training to assemble an aircraft in Kansas (Independence Community College, 1995) or apprenticeships in electronics or tool and die making in Mississippi (Itawamba Community College, 1995).

However, in a training study conducted in Long Island City, New York in 1992, manufacturing firms were interviewed on-site and via telephone to determine the training and human resource needs of the firms in light of the demographic characteristics of the local labor force (Long Island City Business Development Corp., 1992). This study found that the most prevalent problem cited by manufacturing firms was finding workers

with solid pre-employment and critical thinking skills. (In this study, pre-employment training included reading and arithmetic remediation, an overview of industry characteristics and opportunities, and English as a second language.) This was true whether or not the workers had skill-specific instruction, since most of the employers provided skill-specific instruction in-house, usually on the job.

To help meet this need for basic employment skills, the federal government provided funding through the Job Training Partnership Act of 1982 (U.S. Department of Labor, n.d.). Title II-A of the JTPA, serving economically disadvantaged adults, and Title III, serving dislocated workers, offered a variety of benefits and reemployment services to unemployed potential workers, including grants for occupational skills instruction, on-the-job training, basic and remedial education, and literacy/language training. (This act has since been repealed as of July 1, 2000 and replaced by the Workforce Investment Act of 1998, which provides for the same type of training services.)

When JTPA funds were used to finance training programs, evaluations in Washington State found that classroom skills training was reflected in higher wages for participants who were still employed in the third quarter following training (Washington State Workforce Training and Education Coordinating Board, 1996). These participants received Basic Skills Training, which was instruction designed to prepare the individual for future employment or retention in employment and included remedial reading, writing, mathematics, literacy, and study skills. Participants also received Institutional Skills Training, which was instruction designed to provide or upgrade technical skills

required to perform a specific job or group of jobs, such as industry-specific and customized job training which could be held at an institution or on a work site.

In a follow-up study the following year (Washington State Workforce Training and Education Coordinating Board, 1997), the Battelle Memorial Institute found that 92% of employers in Washington state had difficulty finding applicants for job openings who had job-specific skills; the next most frequently cited skill deficits were problem-solving or critical thinking skills (84%) and positive work habits and attitudes (83%). When new employees had completed a workforce training program included in the study, however, at least 70% of the employers were satisfied with the quality of their new employees, and at least 66% were satisfied with their job-specific skills. So at least in Washington state, training similar to the ORVPET curriculum resulted in higher wages for the employees and increased satisfaction with the workers on the part of the employers.

Similar results were obtained in Texas and Illinois (King, Lawson, Olson, Baj, and Trott, 1995). In these studies, success was determined to be earnings at 155% the federal poverty level, and strict-steady employment (continuous employment, potentially with several employers) in the first and second post-program years. Continuously employed participants rose from 25% to 28% from the first to the second year in Illinois, but the rate of employment remained constant at 35% in Texas. Earnings success rates rose in Illinois from 19.7% to 31.0% from the first to the second post-program year, while in Texas, earnings success rates rose from 22.3% to 24.8%. In both states, participants placed into precision production and operator jobs, such as those targeted by the ORVPET program, had higher than average employment success rates.

For low-income, unemployed, and disadvantaged adults, training can improve the participants' employability skills, according to a study conducted in Pennsylvania in 1996 (Staszewski, 1997). Participants in the Job Readiness Training Program administered by the Community College of Allegheny County, Boyce Campus Braddock Center, received training in math, reading, English, personal development, and motivation. In the study, the majority of the participants felt that their skills in each of these areas had improved "very much," the most positive response, as a result of the training. Almost 75% of the respondents reported improvements in communication skills, and participants made comments indicating that they felt prepared to work with others and felt prepared for a job as a result of the training.

In Saline County, Arkansas, employers in local manufacturing industries, along with experienced workers and instructors of work-based education programs, identified the following workplace skills as "essential": reading, writing, mathematics, work ethics, employability, interpersonal, problem-solving, communications, negotiation, teamwork, and leadership (Robertson, 1996). These same skills were identified as "essential" as early as 1989 in a study of employers' expectations of vocational education (Imel, 1989), and in the SCANS Report by the Secretary of Labor's Commission on Achieving Necessary Skills (1992).

In Ohio, a "skill gap" was identified between the skills of the state's labor force and the skill demands of current workplaces (Ohio Business Roundtable and Ohio Department of Education, 1998). This report identified fundamental workplace skills to include: understanding and applying written and visual information, mastering new technologies, using mathematical reasoning in solving problems, anticipating and

preventing problems, redesigning inefficient work processes, and functioning as a team member. To improve these "foundational skills" in the future workforce, the Ohio Business Roundtable and the Ohio Department of Education, in cooperation with ACT, Inc., launched the Ohio Skill Gap Initiative in 1998. This initiative used ACT's Work Keys system to determine what skills were needed by entry-level employees to succeed at work.

In the Technical Job Cluster, which included such jobs as automobile mechanic, electrician, plastics fabricator, and robotic machine operator, new workers needed at least intermediate skill levels in Applied Mathematics, Reading for Information, Applied Technology, and Locating Information to qualify for 80% of the jobs available. This meant that new employees had to apply mathematical reasoning and problem-solving techniques to work-related problems, read and understand work-related information, solve problems of a technological nature in equipment found in the workplace, and use information presented in typical workplace graphics such as charts, tables, diagrams, and instrument gages. To reach that goal, the Ohio Business Roundtable and the Ohio Department of Education recommended, among other actions, that employers assist schools, colleges, and universities in developing integrated curricula for available jobs; build partnerships with schools, colleges, universities, and other employers to provide students with mentors; and provide ongoing employee training to enhance the skills required in a high-performance workplace.

To help meet the need for skilled manufacturing employees, the Institute of Advanced Manufacturing Sciences (IAMS) in Cincinnati, Ohio began a tuition-free night school program in September 1997 (IAMS, 1998). This program, sponsored by a

consortium of 12 area companies, included 6 weeks of training for 4 hours a night, Monday through Friday. Applicants to the program had to demonstrate a ninth grade math and reading ability, and had to pass a drug and police screening. Applicants were allowed to miss only one training session during the course. After graduation, training participants were recruited by IAMS consortium companies for jobs which were required to offer workers a minimum of $9.00 per hour. Consortium member companies paid annual dues of $1,500 plus hiring fees of $1,200 per employee to participate in the program.

In Licking County, Ohio, a similar program was created to meet the needs of local manufacturers (Licking County Joint Vocational School, n.d.). A consortium of nine companies and the Licking County Joint Vocational School created a pre-employment training program to enhance the entry-level manufacturing skills of the Licking County workforce. The 120-hour training program included the areas of : communications, teamwork, safety, wellness, quality, and manufacturing basics. The classes met for 4 hours a night, 5 nights a week for 6 weeks, with a zero tolerance for absenteeism. This program had successfully trained 850 workers, according to information available as of July 2000, and had placed 93% of the participants in jobs that averaged $11.50 per hour (Licking County Joint Vocational School, n.d.).

Conclusion

A review of the literature supports the development of a program such as the ORVPET program. The studies described in this review have indicated a perceived need on the part of employers for basic employment skills, such as problem-solving, critical thinking, positive work habits and attitudes, understanding and applying written and

visual information to work processes, and functioning as a team member. In Ohio, workforce education programs have joined businesses and educational institutions in partnerships to reach the workers' and employers' needs. However, while such programs may track placement statistics, no published results of their effectiveness could be located. Are Ohio employers satisfied with the graduates of workforce development programs? Are the graduates successful employees? Do they outperform similar workers who have not gone through a training program?

Since the ORVPET program differs from the programs described in this literature review in that the employers conduct the training, the companies involved in the ORVPET program appear to have a larger investment in the outcome of the ORVPET classes than is typical of training consortium members elsewhere. For the ORVPET employers, determining the success of the ORVPET program is an important component to ensuring their continued participation.

CHAPTER 3
METHODOLOGY

Design

To evaluate the effectiveness of the ORVPET program, a causal-comparative approach using both survey and interview formats was chosen for this study. For this research, the experimental group of employees who had completed the ORVPET curriculum were matched by age, gender, and date of hire with a control group of employees who had not attended the ORVPET classes. At the time that this research was conducted, the experimental group members had already completed the training and been hired by one of the consortium companies, so any manipulation of the training variable was not possible, prohibiting a true experimental approach and indicating the need for a causal-comparative approach (Fraenkel & Wallen, 1996, chap. 15). In addition, because of the use of a categorical variable (participation in the ORVPET program), and since the control and experimental group scores from the survey are of interest rather than individual scores, this research does not qualify as correlational (Fraenkel & Wallen, 1996, p. 343).

A survey of 40 items provided the quantitative data for this study. ORVPET participants were also given the opportunity to comment in writing on their perceptions of the effectiveness of the training, providing a limited amount of qualitative data. Since the resulting experimental and control groups were small, interviews with the human resources managers at the employing consortium companies gathered additional qualitative data that provided a means for interpreting the quantitative results.

Participants

Of the 123 people who completed the ORVPET curriculum, 35 participants accepted entry-level positions with consortium companies. At the time of the study, only six ORVPET participants were still employed within the consortium. One ORVPET-trained employee was on maternity leave and could not be located for this study, resulting in an experimental group of five people, the entire available population of ORVPET program participants employed at consortium companies.

These subjects were then matched with similar employees of the same company who had not attended the ORVPET classes. Members of the matching control group were selected by the human resources managers of each employing company. The participants were selected from among the company's hourly workers who matched the company's ORVPET employees by gender and age; as closely as possible, the date of hire was also used as a selection characteristic. Beyond these criteria, the human resources managers were allowed to assign the matches randomly, but in reality, gender, age, and date of hire narrowed the selection to a single individual match in four of the five cases, so random matching cannot be said to have occurred. (The document used to inform the managers of the selection instructions described above is included in Appendix A.)

The resulting two groups consisted of four males and one female per group. The age ranges were as follows:

Table 1

Age Distribution of Sample Population

Age Distribution	Control Group	Experimental Group
25 – 30	1	1
31 – 35	2	1
36 – 40	1	2
51 – 55	1	0
56 – 60	0	1

The average length of employment at the consortium company was 4 years, 4 months for the control group and 1 year, 9 months for the experimental group. Although this was not an ideal match, it was the closest possible match in view of the small experimental group; age and gender were determined to be the most important matching factors.

Data Collection

Survey Instrument.

Participants in both groups completed a survey, which is contained in Appendix B. This survey was designed to capture their attitudes and feelings toward eight employment characteristics indicated by the consortium employers as desirable: job knowledge, work behavior, reliability, teamwork, safety practices, dependability, communication, and work quality. Using these characteristics and the definitions provided by the consortium, survey questions were developed to address each of these characteristics. Between four and seven questions per topic were generated and randomly ordered to create the research instrument. The experimental group received an additional eight questions which attempted to tie the ORVPET curriculum to job performance improvement.

The employment survey was pilot tested by a group of five consortium members; no changes were suggested as a result of this testing and the survey appeared to have internal validity. The instrument also appeared to be reliable, based on similar responses to questions that were both positively and negatively worded. The members took approximately 30 minutes to complete the survey, indicating that at least 60 minutes should be allowed for the participants to complete their surveys. At this point, the survey dates and locations were scheduled.

Three separate sessions were required to administer the survey to all of the participants at their workplaces. In all cases, the employees were being paid their regular wages during the sessions and they were under no pressure from their employers to return to the production floor. Conference rooms were used to keep the sessions private and relatively quiet. In one session, the employees were given the survey over their lunch break and lunch was provided by the employer.

The sessions were scheduled for the participants by the human resources managers of the various companies, and participants were told only that they were to attend a meeting, with no additional details. Upon arriving, each participant was given a pencil and a packet containing an informed consent form, a demographics sheet, and the employment survey. ORVPET participant packets also contained the training-related questions.

The researcher was introduced to the survey group by the human resources manager of the company, who then left the room. To maintain consistency, instructions for completing the survey, contained in Appendix C, were read aloud and participants were given the opportunity to ask questions. Each participant then completed an

informed consent form, contained in Appendix D, which was immediately collected by the researcher and maintained separately from the survey results, since it contained identifying information about the participant.

The instructions on the demographics sheet were read aloud, and participants were allowed to ask questions to make sure they understood the need for and use of this information. This sheet was then set aside, and the instructions for completing the survey were read aloud. Any questions were then answered, and the participants completed the survey. After completion, each participant returned the materials to the envelope, gave the envelope to the researcher, and left the room quietly so as not to disturb the others. In no case did the survey take more than 40 minutes to finish.

Interviews.

After the data collection sessions for the control and experimental groups were completed, the human resources managers at each hiring company were interviewed to gather their impressions about the ORVPET program and its participants. The interview questions are contained in Appendix E. The interview questions were designed to evaluate employer satisfaction with the ORVPET program and to determine possible causes for any observations that result from the employee surveys. The questions also were intended to gather anecdotal, qualitative information which may support or refute the quantitative results from the surveys.

The three human resources managers were interviewed separately in their offices at their respective companies. The interviews were tape-recorded with the permission of the interviewees; the tapes supplemented notes taken during the interviews. Follow-up questions were directed toward clarifying information and gathering details of concepts

which were introduced by the managers. The only exceptions were questions aimed toward comparing the ORVPET class composed entirely of Department of Human Services clients to the other ORVPET classes; if the subject was not addressed by the human resources manager, the researcher introduced the topic. Interruptions were non-existent with two managers and minimal with the third manager. All of the managers were very cooperative in assisting with the study, answering the questions fully and allowing the researcher ample time to complete the interviews.

Attendance Records.

The human resources managers also provided the attendance information used to evaluate the attendance of employees who had been through the ORVPET program against those who had not. The companies participating in the study use a no-excuse attendance policy; employees accrue "occurrences" when they are absent, regardless of the reason.

CHAPTER 4
RESULTS AND DISCUSSION

Attendance Records

Attendance records from July 1999 through June 2000 were compiled for both the experimental group members and the control group members. However, some of these employees had been laid off during the year for differing amounts of time. Therefore, to compare the attendance records fairly, the hours of work missed by each participant in the study (for any reason other than a recognized holiday) were computed as a percentage of the total time that the participant worked during the period. The following table summarizes the findings:

Table 2

Attendance Results (Averages)

	Control Group Average	**Experimental Group Average**
Company A	4.58 %	2.64 %
Company B	4.79 %	11.04 %
Average of Companies A and B	4.69 %	6.84 %

Survey Results

The raw data returned from the survey results are contained in Appendix F. The results are summarized in the following table, where the lower the score, the more desirable the behavior:

Table 3

Survey Scores for Selected Characteristics (Averages)

Characteristic	Number of Questions	Control Group Average	Experimental Group Average
Job Knowledge	4	2.45	2.60
Work Behavior	4	3.60	4.25
Reliability	7	2.46	2.49
Teamwork	5	2.28	1.98
Safety	5	2.04	1.84
Dependability	4	2.15	1.60
Communications	5	3.64	3.24
Work Quality	6	1.97	2.27

Interviews

The human resources managers at the hiring companies were generally positive overall about the ORVPET program. While the managers saw a noticeable positive difference between graduates of the program and non-graduate employees, they also identified areas where the program did not meet their expectations.

The companies expected to achieve several benefits from the program, including an easier and faster hiring process because they could draw from a pool of people who were immediately available. The companies also expected higher quality employees who had more realistic expectations of the work environment, who were more dependable in their attendance, who would stay with the company longer, and who would display characteristics that would make them more promotable than their non-graduate counterparts.

Two of the three hiring companies were disappointed that the hiring process did not meet their expectations. The ORVPET program did not speed up the hiring process, since the program participants proved just as hard to contact as the typical applicants. Once the program graduates were contacted, however, the interview process was somewhat more efficient because the human resources managers were also program instructors and already knew the participants and their various employment situations. However, all of the employing companies hire constantly; one manager acknowledged that she still needed people "right this minute" and routinely interviewed people at 10:00 a.m. to start at noon of the same day. As a result, sending potential employees through a 6-week training program was a "waste of time," according to one manager, who said she needed people in place and working now.

Nevertheless, the managers agreed that the people who went through the program were, in general, more desirable employees. One manager said that she could name several success stories of people who were hired through the program and became contributing, committed employees, and that the program connected her company to "the right people at the right time." Another credited the training with making the graduates more focused on job quality, with better attendance and teamwork, than the non-graduates. The ORVPET graduates knew what to expect in a manufacturing environment, plus they had a chance to network with various managers and supervisors throughout the company who acted as instructors; she felt that made the graduates more likely to communicate productivity concerns to the appropriate people. In addition, the graduates came away with a better understanding of the employer's perspective and company goals than a regular hire.

The managers credited the training for the difference in employee performance; one employer estimated that 95% of the positive behavior she observed was due to the ORVPET program. Two of the managers noted a trend through the different training classes, in which the first class was 80% to 100% self-driven and therefore not really helped by the training, to the later classes (including the DHS-sponsored class) which were 90% to 100% driven by the training. As one manager stated, the training "sparked something" in those participants, making them aware of employment aspects that they had not been exposed to before, and creating behaviors which they had no drive to acquire on their own.

The managers had mixed feelings about the retention rate of the ORVPET graduates. Two of the three managers cited improved retention of employees as one of the goals of the ORVPET program for their companies. However, while one manager saw a few program graduates who "did not last as long as they should have," another manager was "thankful that they stayed as long as they did." Most of the managers felt that they had gotten several good employees from the program, and one admitted that she hired a few program graduates that she knew would not be adequately challenged and would not stay long. One of the managers blamed the wages she was able to offer the ORVPET graduates for at least part of the retention problems she saw; there were people in the program who would have been "wonderful employees" in her estimation, but the money and benefits she could offer did not match what the ORVPET graduates wanted. Another manager also shared her disappointment that more graduates did not want to go to lower-paying employers where jobs were available, instead waiting for a higher-paying

position to materialize elsewhere in the consortium, which did not happen.[1] In addition, one manager commented that, while she was disappointed in the retention of ORVPET graduates, their rate was better or no worse than non-graduates. The reason for leaving also mattered to the employers; the managers were unanimous in feeling that as long as the program served as a "stepping stone" enabling the graduates to get better jobs, even if those jobs were out of the local area, then the program should be considered successful.

The managers were universally discontented by the lack of successful employees from the class offering that was conducted specifically for clients of the Department of Human Services. Since the effort was made to conduct the course during the day to meet the clients' needs, the employers expected that the clients would be amenable to accepting employment upon completing the program. However, of the 24 people who began the class, only 9 accepted employment, and just 2 were still working at consortium companies as of July 2000. Of the other 7 people, 2 quit to take better-paying jobs, while the remaining 5 either quit or were terminated for attendance and/or performance problems. However, as one manager pointed out, the consortium is not going to "turn someone around" with 6 weeks of training. Nevertheless, she felt that more positive involvement by the counselors at the Department of Human Services might have encouraged the clients to enter or re-enter the workforce. All of the managers mentioned the "additional baggage" that these clients must deal with to become successful, but they had hoped that the training would have made a difference. As one manager stated, "they had the same opportunities as the others to become good employees, and they had more

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[1] The highest-paying consortium member company did not hire any graduates of the ORVPET program; no openings became available at that company during the classes offered.

to benefit" than the other ORVPET participants. If these class members become long-term employees, she felt that their success would be due entirely to the training, since most of these class participants were there because "they had to be;" otherwise the Department of Human Services would have sanctioned their assistance checks.

If the managers had the chance to develop and offer the program over again, there were a few opportunities for improvement that they would like to consider. Two of the managers thought that the consortium needed a better way to fill classes, other than advertising in the media and through recommendations from the Department of Human Services. The managers wanted to hire 100% from the program, but they were not able to do so when the classes were gradually getting smaller. One manager suggested that, instead of training and then hiring the graduates, she would consider interviewing as she normally would and then provisionally hiring her employees contingent upon their successful completion of the training. One of the managers also suggested that the consortium should expand to include any companies in the area that would meet the participants' personal standards for wages and benefits, so that the training would benefit the economic development of the region, even if not for her particular company.

When asked to sum up their feelings about the program, the human resources managers were unanimous that they and their companies were 100% in favor of the ORVPET program and the investment they had made. As one manager stated, "If they (the participants) have no tools to improve, they can't improve, because they don't know how." The acquisition of those tools was seen by her to be the greatest benefit of the program. The other managers agreed that the consortium cannot control or be held responsible for what happens to an employee after he or she is hired, and that providing

the match between employers and potential employees was a measure of the success of the program.

Research Question 1

This study found a noticeable difference between the attendance records of employees who completed the ORVPET program and employees who did not participate in the ORVPET program, although the results were affected by the company at which these employees worked. Overall, the control group missed fewer hours as a percentage of total time worked than the experimental group, with a difference of 2.15% between the control and experimental group averages.

This result is different from that expected after the preliminary company-specific evaluations were completed, in which the employers postulated that there was no difference in the attendance records between the two groups. This difference may be explained by the length of time involved in the two studies: the preliminary evaluations occurred after 3 to 6 months of employment, while this study encompassed a year's worth of attendance data and did not include in either group those employees with unsatisfactory attendance who had been terminated between the preliminary observations and the time of the study.

It is worth noting, however, that one of the five subjects in the experimental group missed 15.16% of the total hours worked, which was over twice as much as the next highest individual percentage (7.14%). This figure had a noticeable difference on the averages computed. With this figure thrown out, the experimental group average (for both companies combined) becomes 4.78%, and the difference between the two groups narrows to 0.09%.

Research Question 2

The control group slightly outperformed the experimental group in demonstrating job knowledge through the survey, in which the control group scored a 2.45 compared to the experimental group's score of 2.60, a difference of 0.15 points. In addition to the usual questions of accuracy in self-reported data, this difference may be due to the greater amount of overall work experience the control group had when compared to the experimental group. While both groups had similar amounts of work experience at the individual companies, the greater overall work experience of the control group may have resulted in their selection of more appropriate job knowledge responses on the survey.

In support of this interpretation of the data, the human resources managers were satisfied with the job knowledge of the experimental group, with one manager citing the experimental group's job knowledge, demonstrated through production performance scores on the company's performance appraisal, as an acceptable indication of the success of the experimental group. In addition, two of the ORVPET graduates at that company were given more responsibility as a result of their demonstrated job knowledge: one became a line supervisor while the other was promoted from operator to mechanic in a "short time," according to the human resources manager. In addition, three of the five ORVPET graduates strongly agreed with the statement, "I believe that my ORVPET training has helped me learn the responsibilities of my job." As one respondent commented, "It [the training] made me look at my overall position and made me realize the importance of my responsibilities." Therefore, the data collected do not clearly indicate a difference in job knowledge between employees who have completed the ORVPET program and employees who have not attended the ORVPET program.

Research Question 3

The control group outscored the experimental group in self-reported positive work behaviors by a noticeable margin, with a score of 3.60 compared to the experimental group's 4.25, a difference of 0.65. Nevertheless, all of the human resources managers indicated they were satisfied with the work attitudes displayed by the experimental group. Not only did one manager specify this as an acceptable area identified by the company's performance appraisal system for the experimental group, another manager identified work attitude as an observed difference between the two groups. She stated that the experimental group seemed "more focused on the job" and that they demonstrated a "commitment" to the company which she attributed to her getting to know the experimental group members through the training; they did not want to "let her down" by demonstrating negative work behaviors.

Therefore, it is possible that the experimental group is underreporting their positive work behaviors. Since they have been exposed to a broader range of work behaviors through the curriculum presented in the ORVPET program, the experimental group may be more critical of themselves and their behavior on-the-job than the control group; low self-esteem may also be a factor in these responses. Only two of the five ORVPET graduates strongly agreed with the statement, "I believe that my ORVPET training has helped me behave in a professional manner on the job." While one respondent felt that the training helped him/her realize that "if you act unprofessionally, people won't take you seriously," another respondent called the training a "refresher course" on skills that are "sometimes forgotten." The data as reported do not clearly

indicate a difference in work behavior between employees who have completed the ORVPET program and employees who have not attended the ORVPET program.

Research Question 4

In reporting their reliability, the control group again outscored the experimental group in the survey results, but by an extremely small margin; the control group averaged a score of 2.46, while the experimental group scored a 2.49. However, three of the five ORVPET graduates agreed or strongly agreed with the statement, "I believe that my ORVPET training has helped me become a reliable employee." Since the human resources managers did not indicate any particular satisfaction or dissatisfaction with the reliability on-the-job of either group, this result may indicate an area of improvement for the training consortium. The curriculum specifically addresses desirable behaviors which the employee is expected to demonstrate while at work; this curriculum area may need to be re-evaluated for improvement in either the material covered or the method of presentation.

Research Question 5

The experimental group reported a noticeably higher level of teamwork skills than the control group in the survey; the experimental group scored a 1.98 while the control group scored a 2.28, a difference of 0.30. In addition, one human resources manager specifically mentioned teamwork as an area where the experimental group outperformed the control group in her observations. In addition, four of the five ORVPET graduates agreed or strongly agreed with the statement, "I believe that my ORVPET training has helped me be a team player." Comments included: "[The training] made me realize that everyone can use some help at one time or another," "you can't always do it yourself,"

"not one person can operate solely alone; it takes a team effort," and "[the training] helps a person understand people better." In this sphere of job performance, the data collected suggest that the training had a positive impact on the teamwork skills demonstrated by the experimental group.

Research Question 6

The experimental group outscored the control group in reported safety practices with a score of 1.84, compared to a score of 2.04 for the control group, a difference of 0.20. In addition, one human resources manager indicated that, at her company, the experimental group was more likely to report safety problems to the safety manager as a result of the training, since the company safety manager is the instructor for that part of the curriculum and the participants felt comfortable talking to him because they knew him. However, differences in particular safety practices were not mentioned during the interviews, suggesting that the human resources managers were neither extremely satisfied nor dissatisfied with the safety practices of either group. In addition, four of the five ORVPET graduates neither agreed nor disagreed with the statement, "I believe that my ORVPET training has helped me perform tasks in a safe manner." In the absence of strong supporting or refuting evidence, the scores alone indicate that the training may have had a positive effect on the safety practices of the experimental group.

Research Question 7

In dependability, the experimental group scored a 1.60 on the survey, compared to the control group's score of 2.15, a difference of 0.55. In addition, three of the five ORVPET graduates agreed or strongly agreed with the statement, "I believe that my ORVPET training has helped me become a dependable employee," and one respondent

commented, "[The training] made me think about time management [and] how to use my time better." Another respondent said that the training made him "try to always be on time." Two of the human resources managers supported these data, citing dependability as an area of observable difference between the two groups, although one manager qualified her observation slightly by stating that the longer the employee stayed with the company, the more the corporate culture affected the dependability of the worker. Nevertheless, the data support the theory that the ORVPET program had a positive effect on the dependability of the experimental group.

Research Question 8

The experimental group also outscored the control group on the survey in effective communications skills. Their scores differed by 0.40, with the experimental group scoring a 3.24 and the control group scoring a 3.64. Four of the five ORVPET graduates agreed or strongly agreed with the statement, "I believe that my ORVPET training has helped me communicate better with my co-workers and supervisor(s)." The interview data also supported these results, with one human resources manager citing communications skills as an area identified by the company's performance evaluation where the experimental group displayed more desirable communications behaviors than the control group. Therefore, the data indicate that the ORVPET program had a positive effect on the participants in the area of communications skills.

Research Question 9

In the area of work quality, the control group outperformed the experimental group on the survey with a score of 1.97 to the experimental group's score of 2.27, a difference of 0.30. Only two of the five ORVPET graduates agreed or strongly agreed

with the statement, "I believe that my ORVPET training has helped me implement quality procedures." However, two of the human resources managers particularly emphasized work quality when asked to identify how the two groups differed. One manager stated that the experimental group was more focused on work quality than the control group, while the other noted that her company's performance evaluations identified quality as an area of better performance by the experimental group when compared to the control group. Therefore, no clear effect of the training on work quality can be identified from these data, suggesting that the training consortium may want to examine this area for improvements in the curriculum and presentation methods.

CHAPTER 5
CONCLUSIONS AND RECOMMENDATIONS FOR FURTHER STUDY

Summary

The ORVPET program was created to teach work skills to individuals in southern Ohio and northern Kentucky prior to employment. The program was designed by a consortium of area employers, in cooperation with the Scioto County Joint Vocational School's Workforce Development Center, and is notable in that the training was developed and was presented to the participants by employees of the consortium companies. The consortium included: M & J Industries, Mitchellace, the Ohio Department of Natural Resources, RHI Refractories America, and Vinyl Kraft; these organizations were joined later by M & D Cable Company.

In light of the depressed economy of the area and the employers' need for quality workers, the program was expected to prepare the participants for entry-level manufacturing jobs available among consortium employers. Since the participants had been instructed in areas which the employers had identified as important, the consortium wanted to know if the training had, in fact, produced employees who outperformed similar workers in these key areas.

Through a survey of the training participants who were still employed two years after the start of the program, as well as by interviews with human resources managers at the employing companies, this study attempted to determine if the training was effective in the following areas of interest: attendance, job knowledge, work behavior, reliability, teamwork, safety, dependability, communications, and work quality. The results of this study indicated that ORVPET participants did not have better attendance records than

their peers when comparing the hours missed as a percentage of the total time worked. However, one of the five subjects in the experimental group had an extraordinary amount of time missed, and when that subject was not used in the calculation, the difference between the two groups was negligible.

The ORVPET participants also did not demonstrate greater job knowledge through the survey, although this result may have been affected by the greater work experience of the control group. Interviews with the human resources managers of the hiring companies indicated that the employers were satisfied with the ORVPET participants' job knowledge, and three of the five ORVPET participants believed that the ORVPET curriculum helped them learn the responsibilities of their jobs, so the data were inconclusive regarding job knowledge.

While the control group outscored the ORVPET participants in self-reported positive work behaviors, the human resources managers indicated that they were satisfied with the participants' work behaviors, so again the data were inconclusive regarding work behavior. Only two of the five ORVPET participants associated the ORVPET curriculum with professional behavior on the job, but it is possible that the participants were underreporting their positive work behaviors and that low self-esteem may be affecting these results.

Regarding reliability, the survey data did not clearly indicate a difference between the control group and the ORVPET participants, but three of the five ORVPET graduates believed that the ORVPET program had helped them become reliable employees. The interview data did not reveal any additional qualitative data, so the ORVPET curriculum in this area should be re-evaluated to see if it can be improved.

The ORVPET participants scored noticeably higher than their peers on the survey items regarding teamwork, and the human resources managers noticed a difference in teamwork skills between the ORVPET participants and their peers on the job. Four of the five ORVPET participants believed that the ORVPET curriculum helped them to be a team player. Therefore, the data collected suggest that the training had a positive impact in this area.

Safety was another area where there was no clear difference between the two groups, although the training may have had a slight positive effect. While the ORVPET participants scored better than their peers in this area on the survey, the human resources managers did not mention safety practices directly during the interviews, and four of the five ORVPET participants neither agreed nor disagreed that the training had helped them perform tasks in a safe manner.

The ORVPET curriculum did appear to have a positive effect on dependability, however. The survey scores for dependability for the ORVPET participants were higher than for their peers, and three of the five participants believed the training had helped them become dependable employees. The human resources managers agreed during their interviews that dependability was an observable difference between the ORVPET participants and their peers.

The ORVPET participants also appeared to display more desirable communications skills than their peers, according to the human resources managers, and four of the five ORVPET participants believed that the ORVPET curriculum had helped them communicate better in the workplace. This result was borne out by the survey scores, as well.

Finally, the ORVPET program could not be clearly shown to have a positive effect on work quality. Although the control group scored better than the ORVPET participants on the relevant survey items and only two of the five ORVPET participants believed that the training helped them implement quality procedures, the human resources managers felt strongly that the ORVPET participants demonstrated higher work quality on the job than their peers. Since an entire week of the six-week training period is devoted to quality practices, however, the curriculum for this topic should be re-evaluated for areas of improvement.

This study has identified areas where the ORVPET curriculum appears to be effective (teamwork, dependability, and communications skills) and areas which may need improvement (attendance, job knowledge, work behavior, reliability, safety practices, and work quality). Nevertheless, the human resources managers at the consortium companies continued to be in favor of the ORVPET program and felt that the participants were, in general, more desirable employees, even though the ORVPET program did not speed up the hiring process as they had hoped.

Future offerings of this program should incorporate any changes the consortium feels are necessary to improve the effectiveness of the training, while continuing to maximize those areas where the training seems to have been successful. Using the tools developed for this study, the consortium can evaluate future offerings and compare those program participants to these results to see if the program effectiveness has improved. Other pre-employment training programs looking to the ORVPET program as an example may want to examine their curricula in these areas as well, to accommodate the needs of their own participants and employers. Again, these data should not be used as

evidence of the effectiveness of these non-ORVPET programs, as the study results cannot be generalized beyond this particular program and its participants.

Recommendations for Further Study

This study indicated that the human resources managers felt that their companies were getting "better people on-board" as a result of the ORVPET program. However, this study must function as baseline data, since its focus is too narrow to be generalized to other programs. An extensive review of available literature did not reveal any other programs which taught a general "employability" curriculum using company employees as instructors. Nevertheless, these programs may exist and just not be documenting their achievements. Therefore, one avenue of further study would be to locate similar programs and draw comparisons between those programs and the ORVPET. Possibly of more interest would be to compare programs which are developed and taught by employers to those which are designed and conducted by educational institutions, to see if the programs differ in their effectiveness in preparing people to enter or re-enter the workforce.

For those employers or institutions who are contemplating developing a similar program, this study can be used to identify one method for creating an employer-driven pre-employment training program, and it can serve as a benchmark for such programs.

The largest challenge for this study was that the experimental group was so small, even though it comprised the entire available sample population. Ideally, this study should be replicated using a larger sample population, which would improve the statistical power of the approach (i.e. improving the probability that the survey answers

did, in fact, mirror reality). In addition, repetitions of the study would continue to build confidence in the results gathered by the tools used.

Additional research could also shed more light on the influence other factors might have played in the effectiveness of the training. For example, did the training's effectiveness differ based on the socioeconomic status of the participant, as was suggested by the class held solely for Department of Human Services clients? Did gender play a role? The homogeneous nature of the experimental group prevented this research from examining these questions. These and other characteristics of the participants can be analyzed with a larger, more diverse sample population.

Finally, the fact that the experimental group members were hired and still remained hired at the time of the study raises questions about those people who completed the training but either were not hired or did not remained employed by the consortium companies. In some cases, the employers were able to determine that the training participants were terminated because of job performance, but the motives of those participants who resigned were not always clear. If they received better job offers or have been continuously employed since the training, the program might be seen to be a success even if it did not benefit employers in the area. Similarly, those participants who consistently refused employment offers could provide interesting data for additional training or support programs which may be needed in this region.

APPENDIX A

6/1/2000

I decided to type this up in an effort to explain better what is happening. I am ready to give the survey to our PET graduates, and I need a similar group of non-PET people to survey, so that I can match their answers and see how the two groups compare. Therefore, as Beth's study of intergenerational characteristics shows, the two most important factors to match on are: gender and age. Also, for purposes of this study, the date of hire is important, since it indicates the amount of work experience at your plant and will help counteract the "corporate culture" types of findings that may show up.

(I almost forgot to mention, too, that the "matchers" should all be hourly employees, not salaried. Even though one graduate has been promoted, we want to compare him to a typical person hired at the same time, who probably isn't a supervisor yet. Unless you happen to have someone in the same situation . . .)

If you still have a lot of people to choose from for matches, overall (lifetime) work experience is another factor that would be useful to match on. In other words, are the 18 months a PET graduate has been in your employ ALL of their work experience, or do they also have 20 years in at another employer? I don't know if you will know that for your employees, but if you do, it would be good thing to match on. However, if everything else matches except work experience, it is still okay—this should be considered last.

Other than the factors above, the matching should be random—pick the Nth person off of a list (whatever your favorite number is), draw names from a hat, or whatever. Good luck!

Once we have the names for both groups, I'll call you and set up a convenient time and place to survey your company employees all together. We will also need to figure out how best to notify the lucky ones that they have been selected without: a) scaring them, or b) giving them time to figure out the point of the study and therefore answering the questions the way they think I want them to, instead of the way they truly feel. Hopefully, by using only one shot at this, we will not take up too much time away from production.

Let me know if you need any more information, or want any help in deciding who is like whom. I'm starting to get really excited about this—I want to see what they're going to say, and find out if/where we could have done things differently.

I'll be following up to see if you need anything. Thanks so much,

Carol

APPENDIX B

EMPLOYMENT SURVEY

The results from this survey will be used to evaluate and improve a local training program. Your responses are not associated with you by name and will be kept confidential, so please be as honest as possible. In addition, your participation in this survey will not impact your employment or promotability, either positively or negatively, now or in the future. Thank you for taking the time to help us improve our training.

Instructions: Circle the number that most fits your judgment about the following statements, using a range from 1 for Usually to 7 for Rarely (4 is Sometimes).

	Usually						Rarely
I make fewer than the average number of mistakes during production.	1	2	3	4	5	6	7
I understand the responsibilities of my job better than others who do the same tasks.	1	2	3	4	5	6	7
If I have work that extends into the following shift, I pass on any necessary information to the next person doing my job.	1	2	3	4	5	6	7
If I am unsure about what to do, I will ask my supervisor or team leader.	1	2	3	4	5	6	7
My supervisor knows where all of his/her employees are during working hours.	1	2	3	4	5	6	7
If my co-workers aren't getting along, I will try to stay out of it--it's none of my business.	1	2	3	4	5	6	7
My co-workers ask me to explain instructions or announcements that they do not understand.	1	2	3	4	5	6	7
If I were involved in an accident on the job, I would know how and to whom I should report it.	1	2	3	4	5	6	7
My co-workers do not know their jobs as well as they should.	1	2	3	4	5	6	7
I frequently don't know what I am supposed to do.	1	2	3	4	5	6	7
If I am unsure about what to do, I will work on it myself until I can figure it out.	1	2	3	4	5	6	7

	Usually						Rarely
If I saw something on the production line that could be improved, I would bring it to the attention of my supervisor or team leader.	1	2	3	4	5	6	7
If I saw an unsafe work situation in my area or department, I would take steps to correct it.	1	2	3	4	5	6	7
If I am doing a job where I feel safety equipment is needed, I would request it.	1	2	3	4	5	6	7
Other people who do my job (or similar work) make more mistakes than I do.	1	2	3	4	5	6	7
If I heard a story about a co-worker, I would repeat it only to people who knew the person.	1	2	3	4	5	6	7
If I am unsure about what to do, I will ask a co-worker.	1	2	3	4	5	6	7
I return promptly from breaks.	1	2	3	4	5	6	7
I believe that my co-workers are more concerned about safety than is necessary.	1	2	3	4	5	6	7
If I make a mistake during my shift, I will correct it if I can.	1	2	3	4	5	6	7
If I find that I cannot meet a deadline or production quota, I will talk it over with my supervisor or team leader.	1	2	3	4	5	6	7
My co-workers return promptly from breaks.	1	2	3	4	5	6	7
If I make a mistake during my shift, I will tell my supervisor or team leader.	1	2	3	4	5	6	7
If my co-workers aren't getting along, I will step in and try to help.	1	2	3	4	5	6	7
I believe that I have a more positive attitude than the average employee.	1	2	3	4	5	6	7

	Usually						Rarely
I feel that my co-workers, in general, would not work well with someone who was very different from them.	1	2	3	4	5	6	7
If I heard a story about a co-worker, I would repeat it only to people who did not know the person.	1	2	3	4	5	6	7
I tend to let things at home affect whether or not I make it to work on time.	1	2	3	4	5	6	7
I feel that I would work well with someone who was very different from me.	1	2	3	4	5	6	7
If I have to leave the area, I notify my supervisor or co-workers where I will be.	1	2	3	4	5	6	7
If I make a mistake during my shift, I will hide it if possible until the next shift comes on duty.	1	2	3	4	5	6	7
If I heard a story about a co-worker, I would not repeat it.	1	2	3	4	5	6	7
If I have to take over a job from someone on a previous shift, I am given the information I need to complete the job accurately.	1	2	3	4	5	6	7
I ask my co-workers to explain instructions or announcements that I do not understand.	1	2	3	4	5	6	7
I often help others who don't know what to do on the job.	1	2	3	4	5	6	7
If one of my co-workers were involved in an accident on the job, they would know how and to whom they should report it.	1	2	3	4	5	6	7
If my supervisor or team leader is absent, I would be comfortable if I were left in charge.	1	2	3	4	5	6	7
I usually meet my production quotas.	1	2	3	4	5	6	7
I repeat back instructions which are given to me to make sure I understand them correctly.	1	2	3	4	5	6	7
If I know I am going to miss work, I call as soon as I can to let my supervisor or team leader know.	1	2	3	4	5	6	7

Pre-Employment Training (PET) Program Sheet

Instructions: Circle the number that most fits your judgment about the following statements, using a range from 1 for Strongly Agree to 5 for Strongly Disagree (3 is Neutral).
Use the back of this sheet if you need more room for your examples.

	Strongly Agree				Strongly Disagree
I believe that my PET training has helped me implement quality procedures. Please give an example:	1	2	3	4	5
I believe that my PET training has helped me perform tasks in a safe manner. Please give an example:	1	2	3	4	5
I believe that my PET training has helped me learn the responsibilities of my job. Please give an example:	1	2	3	4	5
I believe that my PET training has helped me behave in a professional manner on the job. Please give an example:	1	2	3	4	5

(continued on next page)

	Strongly Agree				Strongly Disagree
I believe that my PET training has helped me become a reliable employee. (By "reliable," I mean that my supervisor and co-workers can rely on me to do my part.) Please give an example:	1	2	3	4	5
I believe that my PET training has helped me to be a team player. Please give an example:	1	2	3	4	5
I believe that my PET training has helped me become a dependable employee. (By "dependable," I mean that I am where I am supposed to be when I am supposed to be there.) Please give an example:	1	2	3	4	5
I believe that my PET training has helped me communicate better with my co-workers and supervisor(s). Please give an example:	1	2	3	4	5

APPENDIX C

Introduction

Good morning/afternoon. My name is Carol Crotty, and I am a graduate student at Marshall University in Huntington, WV.

Your employer has agreed to participate in a research project which has been designed to evaluate a local training program, and you have been selected as a representative employee of your company.

This session is expected to take approximately 30 to 45 minutes. After completing the employee survey contained in the packet, please put all of the sheets back in the envelope and return the envelope to me. Once I have your packet, please leave the room quietly so as not to disturb the other participants.

Are there any questions at this time?

I appreciate your help in this research project. Please open your packets (if you have not already done so), and we will go over the Informed Consent form together.

APPENDIX D

Informed Consent

You have been selected to take part in an employee survey here at your company. The data gathered from this session will be compiled with the results from other area employers to evaluate the effectiveness of a local training program. This survey is being administered by a researcher from outside your company.

By signing this page, you are saying that (a) you have read and understand the general information listed below, and (b) you agree to participate in this survey.

Taking part in this survey is completely voluntary. Although your participation is appreciated, you may choose to withdraw as a participant at any time without penalty.

- **Taking part in this survey will not expose you to any foreseeable risks,** including those that could endanger (a) your mental/physical health or well-being, (b) the mental/physical health or well-being of friends, family, and loved ones, (c) your job or livelihood, or (d) the job or livelihood of friends, family, and loved ones.

- **All of your responses are to be anonymous.** Please do not write your name or any other means of identification anywhere except on this page, which will be collected separately.

- **All of your answers will remain confidential.** Completed surveys will be kept off of the company premises. No one from your company will ever see a completed survey form that is not their own. After the information on the completed surveys is analyzed and the report is submitted, the original surveys will be destroyed.

- **Any type of survey feedback reported to your company will be group-based.** No individual information will be reported back to your company, and any comments will be kept anonymous.

Signature: _____ Date: _____

Printed Name: _____

The following information will be used ***for analysis only***. It will not be used for identification purposes.

Check one: Male _____ Female _____

Age Range:
(check one)

19 or less _____

20 – 25 _____

26 – 30 _____

31 – 35 _____

36 – 40 _____

41 – 45 _____

46 – 50 _____

51 – 55 _____

56 – 60 _____

61 – 65 _____

66 + _____

Length of employment at this plant: _____ years and _____ months

Length of employment lifetime: _____ years and _____ months

APPENDIX E

Interview Questions for ORVPET Consortium Human Resources Managers
June 13, 2000

1. What benefits did your company expect to receive from the original ORVPET program?

2. How well did the program meet your expectations?

3. In your opinion, is there a difference between ORVPET program graduates and your other employees?

   a. If so, how do they differ?
   b. Do you attribute these differences to the training or to other factors? List any contributing factors and associated percentages (50:50, 90:10, etc.).

4. Looking back on the program, what (if anything) would you do differently?

5. Is there anything else that you would like to share about your experiences with the ORVPET program or the consortium?

APPENDIX F
Survey Results

Respondent #	PET/Non-PET	Gender		Age Range	Length of Employment	Lifetime Employment
1	NP	MALE		25-30	7 YEARS 11 MONTHS	10 YEARS
2	NP	MALE		36-40	8 YEARS	15 YEARS
3	NP	MALE		51-55	1 YEAR 8 MONTHS	32 YEARS
4	NP	MALE		31-35	2 YEARS 6 MONTHS	15 YEARS 6 MONTHS
5	NP	FEMALE		31-35	1 YEAR 6 MONTHS	10 YEARS
6	P	MALE		36-40	1 YEAR 3 MONTHS	21 YEARS 6 MONTHS
7	P	MALE		25-30	1 YEAR 9 MONTHS	6 YEARS
8	P	MALE		56-60	1 YEAR 7 MONTHS	20 YEARS
9	P	MALE		31-35	2 YEARS	18 YEARS
10	P	FEMALE		36-40	2 YEARS 1 MONTH	19 YEARS

APPENDIX F
Survey Results

Description	Qty Questions	Questions		Non-PET	PET	Preferred Avg.
Job Knowledge	4		Avg.	2.45	2.60	NP
		Question 2	Raw	1, 2, 4, 3, 1	2, 3, 4, 4, 1	
		Question 9		5, 4, 4, 7, 6 (negative)	3, 4, 4, 6, 3 (negative)	
		Question 10		7, 6, 7, 7, 1 (negative)	7, 7, 1, 7, 7 (negative)	
		Question 35		1, 1, 1, 7, 2	1, 1, 1, 3, 1	
Work Behavior	4		Avg.	3.60	4.25	NP
		Question 6	Raw	4, 2, 4, 1, 3 (negative)	7, 2, 1, 1, 1 (negative)	
		Question 12		1, 1, 2, 1, 2	1, 5, 1, 2, 5	
		Question 24		2, 5, 2, 7, 4	1, 7, 4, 4, 7	
		Question 25		4, 3, 2, 6, 4	1, 4, 4, 6, 5	
Reliability	7		Avg.	2.46	2.49	NP
		Question 4	Raw	2, 1, 3, 2, 1	1, 1, 1, 1, 1	
		Question 5		6, 4, 4, 4, 4	7, 2, 4, 4, 1	
		Question 11		2, 2, 4, 3, 4	1, 6, 4, 5, 2	
		Question 17		1, 1, 4, 1, 4	1, 1, 1, 4, 1	
		Question 21		1, 2, 1, 5, 1	1, 4, 1, 3, 3	
		Question 30		1, 1, 1, 1, 1	1, 2, 1, 4, 2	
		Question 37		1, 1, 1, 7, 4	1, 3, 1, 6, 5	
Teamwork	5		Avg.	2.28	1.98	P
		Question 3	Raw	2, 2, 1, 6, 1	1, 1, 1, 4, 1	
		Question 16		4, 7, 7, 6, 6 (negative)	7, 7, 1, 6, 7 (negative)	
		Question 27		7, 7, 7, 7, 6 (negative)	7, 7, 7, 4, 7 (negative)	
		Question 32		4, 1, 1, 6, 2	1, 1, 4, 2, 1	
		Question 33		6, 5, 1, 1, 2	2, 2, 1, 4, 5	
Safety	5		Avg.	2.04	1.84	P
		Question 8	Raw	1, 1, 1, 1, 1	1, 1, 1, 3, 1	
		Question 13		1, 2, 2, 1, 2	1, 3, 1, 2, 5	
		Question 14		1, 4, 1, 1, 1	1, 1, 1, 2, 1	
		Question 19		5, 4, 7, 2, 3 (negative)	7, 6, 4, 4, 7 (negative)	
		Question 36		2, 4, 2, 1, 2	1, 2, 1, 4, 1	

APPENDIX F
Survey Results

Dependability	4		Avg.	2.15	1.6	P
		Question 18	Raw	3, 2, 3, 2, 2	1, 1, 1, 1, 2	
		Question 22		5, 4, 1, 3, 4	2, 2, 1, 4, 4	
		Question 28		7, 6, 7, 5, 7 (negative)	7, 7, 7, 6, 7 (negative)	
		Question 40		2, 1, 1, 1, 1	1, 2, 1, 2, 1	
Communications	5		Avg.	3.64	3.24	P
		Question 7	Raw	1, 4, 3, 6, 2	3, 3, 4, 4, 1	
		Question 26		1, 4, 4, 7, 4 (negative)	4, 5, 4, 3, 4 (negative)	
		Question 29		2, 2, 2, 6, 4	1, 3, 4, 2, 2	
		Question 34		2, 4, 1, 1, 2 (negative)	1, 6, 1, 3, 3 (negative)	
		Question 39		3, 2, 1, 1, 2	2, 2, 1, 2, 1	
Work Quality	6		Avg.	1.97	2.27	NP
		Question 1	Raw	1, 2, 2, 2, 2	1, 3, 4, 2, 7	
		Question 15		2, 4, 4, 1, 6	1, 3, 7, 4, 7	
		Question 20		1, 1, 1, 2, 1	1, 1, 1, 2, 1	
		Question 23		2, 2, 1, 2, 1	1, 1, 1, 4, 1	
		Question 31		7, 7, 7, 6, 7 (negative)	7, 7, 7, 7, 7 (negative)	
		Question 38		1, 2, 1, 7, 2	1, 3, 3, 2, 1	

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