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Industry - higher education partnerships: a case study analysis of learning together

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INDUSTRY – HIGHER EDUCATION PARTNERSHIPS:

A CASE STUDY ANALYSIS OF LEARNING TOGETHER

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by

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DEDICATION

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ABSTRACT

In order to remain competitive in the world market, corporations must have highly skilled employees who can keep the enterprise economically viable in a global economy. Partnerships between higher education and industry corporations can be a useful strategy in providing workforce training and maintaining knowledgeable employees.

The purpose of this evaluative case study research was to study an existing industry – higher education institution partnership. The specific attributes examined included formation activities, communication and information sharing processes, perceived and actual benefits gained, and challenges that arose and how they were resolved. Data were collected through artifact analysis, an electronic stakeholder survey, and follow-up interviews.

The outcome of the partnership was a 128-hour polymer certification program. Reasons for forming the partnership included improving employee skills, retraining employees, knowledge exchange, and improving product quality. Information shared between partners was centered on the curriculum development process and logistics related to launching the certificate program. Benefits realized by both partners were customized training program development, content knowledge, cost savings, problem solving skills, access to subject matter experts and leading edge products / technology, real life work experience, and increased sales. Challenges realized by both partners were

timeliness of communication and project work completion, lack of clarity of mutually agreed upon goals, and resource availability.

Conclusions included that the partnership formation process was straightforward based on the industry training needs and the higher education institution expertise. Second, the problems of communication and loss of focus towards goals are likely to be expected in a partnership. Third, partnerships are difficult and a project manager is needed. And lastly, an evaluation of the partnership process itself must be incorporated into the process. This case study research supports that industry - higher education institution partnerships can continue to prove beneficial in the future.

Recommendations include: 1) monthly feedback sessions to assess partner satisfaction and the partnership progress, 2) a "lessons learned" session at the end of curriculum development to determine if the partnership goals were reached, and 3) a capstone review session to integrate feedback results from individual classes and to gauge partner satisfaction with the partnership outcomes.

Chapter 1 – Introduction

A partnership can exist in many forms: formal and informal, public or private, large or small, individual or organizational. The Merriam-Webster dictionary defines a partnership as "a relationship resembling a legal partnership and usually involving close cooperation between parties having specified and joint rights and responsibilities". The key words in the aforementioned definition are "cooperation" and "joint rights and responsibilities". In order for a partnership to be successful, both parties have to cooperate with one another and they have to share the successes and the challenges that occur over the course of the partnership.

As varied as the different types of partnerships are, so are the reasons for forming these partnerships as the benefits differ for each individual and for each organization. With increasing emphasis being placed on the need to have a knowledgeable and skilled citizenry, a partnership between an industry corporation and a university to provide job skills training is a viable and necessary option. A corporation's competitive advantage is increasingly driven by the ability to sustain a knowledgeable and innovative workforce. A corporation relies on a steady supply of prepared workers. A university must consider the needs of the employers as they focus their curricula in order to not only provide a quality education but also to maximize future job opportunities for the students they serve. Creating a relationship in which students gain the

skills they need for today's available jobs is beneficial for the individual, the corporation, the university, and the surrounding community.

As the economy changes and becomes more global, corporations need to be more innovative and seek workforce knowledge that can be gained quickly. Forming a partnership with a university is a practical approach an organization can take in order to influence the development of a knowledgeable and skilled workforce. The need for knowledge has propelled the relationship between industry and universities to evolve. Santoro and Betts support this transition into a partnership relationship as they contend:

> Based on a continuing study of relationships between industrial firms and university research centers, we find industry – university partnerships can be beneficial in helping firms generate knowledge and new technologies, i.e., tangible outcomes that include patents, licenses, and non-patented and non-licensed new products and processes (Santoro & Betts, 2002 , p. 42).

Many higher education institutions have a mission which includes instruction, research, and public service (Witten, 1990). The mission of many corporations is to provide a return on investment, a profit to shareholders, sustain the workforce, and to compete successfully in their given market. By forming a partnership with higher educational institutions, corporations can take advantage of the institutions' core competencies and contribute to the economic development of the community simultaneously. By collaborating with those who are employing the current and future workforce, universities can integrate

real world experience into their curriculum. Collaborative opportunities could be in the creation of new technologies, or processes; access to insightful university research or discoveries; or creating relationships, which will provide job candidates and ensure thoughtful succession planning in the organization. Through partnership, both organizations can contribute to creating a sustainable workforce for many years to come.

Yong's (2000) empirical research supports this by providing reasons that academics collaborate with industry that include: "…to gain knowledge for practical problems useful for teaching, to test the practical application of one's own research and theory, and to create job placement opportunities" (p. 113). He provides additional reasons that industry collaborates with academics which include: "to develop new products or processes, to improve product quality, to recruit university graduates, and to maintain an ongoing relationship and network with the university" (p. 114).

For decades, many corporations have commonly provided some form of financial support to develop its workforce. In 2006, tuition costs rose 35 percent from 5 years ago after adjusting for inflation (Baum & Payea, 2006). Due to this increase, many individuals often cannot seek higher education unless their employers provide some support. By providing financial support to the individual, the corporations want to have input regarding the skills and knowledge needed and are less likely to be willing to pay for educational

endeavors that have minimal bearing on the employees' performance. Human resource staffs have debated as to whether or not this investment in workforce development really provides any direct benefit for the organization. Today's corporations are seeking to maximize their return on investment in all areas of their business, including monies spent on employee development. The days of offering the benefit solely because it provided some value to the individual are gone. Now, there is an increased emphasis on showing the value of any employee development activities regardless of the cost.

The American Society of Training and Development (ASTD) is considered one of the most reputable organizations for providing information about workforce training and development activities. It was formed in 1944 and is now the world's largest professional association dedicated to workplace learning and performance professionals. The partnership relationship between industry – educational institutions has been recorded since 1999. In 2004, the ASTD State of the Industry report (Sugrue & Kim, 2004) showed a slight decrease in the number of partnerships between industry corporations and universities and junior colleges and a slight increase in the number of partnerships between industry corporations and vocational/technical schools (see Table 1).

Table 1.

Industry/Higher Education Institution Partnerships

Year	Universities	Junior Colleges	Vocational and Technical Institutions
2003	72 %	62 %	54 %
2002	73 %	67 %	48 %
2001	73 %	61 %	44 %
2000	71 %	59 %	45 %
1999	75 %	64 %	54 %

Source: 2004 ASTD State of the Industry report

From this data, several conclusions concerning industry – higher education partnerships can be determined. The number of industry corporations collaborating with higher education institutions has remained relatively steady over the past five years guiding one to assume corporations do derive value out of this relationship. Corporations consistently collaborate with universities more frequently than vocational and technical institutions. More than half of corporations have a partnership relationship with some type of higher education institution. Even though more than seventy percent of organizations have a partnership in place, there is still room for growth in creating industry partnerships between universities, junior colleges, and especially vocational and technical institutions.

There have been many industry – higher education partnerships within the last two decades. Some previous industry – higher education partnerships have been mutually beneficial while others have not. Lancaster (2005) claims

that if five characteristics are weaved into the formation of a partnership, the partnership has a greater chance of success through improved collaboration. Those factors are level of trust, organization structure, commitment, reciprocity, and plan and process. The case study analysis of National Specialty Retail Company and Midwest Graduate College that was completed as part of the study demonstrates how the characteristics described led to an ongoing partnership that has lasted five years.

Another example of a successful partnership is of the University of Wisconsin-Madison's manufacturing systems engineering program, and two manufacturers in the community. Each of the manufacturers has seen improvements related to reducing manufacturing lead times. Ingersoll Cutting Tool Co. reduced its lead-time for estimation, quoting, and order entry from 10 days to less than a day, and at Marathon Electric, the time from order placement to shipment has been cut in half (Suri, Veeramani, & Church, 1995). Jacksonville State University and Allied Signal have worked together over a four-year period to create joint problem-solving teams to improve total quality (TQ) concepts being used and ultimately apply the use of total quality tools to company problems (Cobb, Marker, & Mulkey Jr., 1998).

Adversely, other partnerships have not been successful. Some of the reasons why partnerships have not been successful include communication problems, misunderstandings related to funding issues, copyright/patent

disputes, and lack of a partnership champion, (Santoro & Betts, 2002). One example of an unsuccessful partnership is when Boots Pharmaceuticals partnered with the University of California-San Francisco (UCSF) to study a competitor's preparation of one of their drugs, a $600 billion market, to determine if it was bioequivalent. When UCSF completed its study and concluded the drug was bioequivalent with competitors' drugs, Boots Pharmaceuticals attempted to dispute the research. After a multi-year disagreement, the research was eventually published (Santoro & Betts).

Kotnour and Buckingham (2001) analyzed partnerships from 81 of Florida's aviation/ aerospace companies who support the Kennedy Space Center and 47 of 127 faculty members from 13 colleges/universities who are involved in those partnerships. Their research indicated the faculty perceived that weak communication exists between the educational system and industry and a weak infrastructure exists to support collaborations. Industry representatives agreed with the faculty's conclusions as well as identifying additional issues such as a limited understanding of each other's needs and capabilities, limited state support, and a lack of a strategic plan.

The findings from the above researchers support the core definition of a partnership, which emphasizes cooperation and joint rights and responsibilities. Without these two items, an industry – higher education partnership is going to be a challenging and costly experience for all parties involved.

Problem Statement

Industry corporations are constantly striving to remain competitive. Some of the most important factors identified that will have an impact on workforce development in the future are technology, the new knowledge economy, politics, demographics, changing age profiles, and the global need for talent (Minic & Varney, 2005). Driving this global need for talent is a presumed lack of future talent documented by various authors, which makes preparing a knowledgeable and skilled workforce essential (Chambers, Foulon, Handfield-Jones, Hankin, & Michaels III, 1998; Minic & Varney; Tulgan, 2001). Minic & Varney state "Worker knowledge and skills…are the new determining factors in economic growth and prosperity" (p.52). Knowledge is shared in multiple ways within an organization, but one of those methods is through formal training and development activities.

Developing and maintaining a corporation's workforce is an ongoing struggle for many corporations in terms of cost and availability of time and resources. ASTD estimates that industry corporations spend $109.25 billion annually on learning and development activities. In 2005, the average annual expenditure per employee increased to $1,424, which is a four percent increase from the previous year and the average cost per learning hour received decreased slightly from $54 in 2004 to $42 in 2005 (Rivera & Paradise, 2006).

One way some organizations are overcoming their employee development problems is by forming workforce development partnerships with higher education institutions. Forming a partnership between two entities that may have very different goals can be a challenging process. The corporation and the educational institution have to work together to define the relationship, determine methods of collaboration, and establish shared goals, so both organizations can reap the benefits from the partnership.

Purpose of the Study

The purpose of this evaluative case study research was to study an existing partnership, including its initial formation and the resulting workforce development relationship, between a higher education institution and a selected industry corporation. This study examined the attributes of this partnership and reviewed why it had or had not been successful and provides further clarification on how this type of arrangement can benefit both organizations as well as detailing how future organizations may form successful partnerships. Stake (1995) explains that the first purpose of case study research is to focus on understanding the case under review with the possibility that the analysis may be applicable to other cases. The case study approach was appropriate for this research because it provided for an in-depth analysis of an industry - university partnership.

Research Questions

To accomplish the purpose of this study, the following research questions were investigated:

1. What activities were involved in forming this industry – higher education partnership?
2. What is/was the process the partner organizations use to communicate and share information?
3. What perceived and actual benefits were gained by the partner organizations?
4. What challenges have arisen between the partner organizations and how were/are they being resolved?

Significance of the Study

As the United States continues to be challenged as a global leader, corporations will continue to feel the demands of the external competitive environment. The United States international deficit in goods and services topped $56.5 billion in September 2007 (*U.S. international trade in goods and services highlights*, 2007). In order to remain competitive in the world market, corporations must have highly skilled employees who can keep the enterprise economically viable in a global economy. The American Institute of Banking found that more than 80 percent of their banks reported problems with tellers that included counting incorrectly, transposing figures or decimal points, and

being unable to calculate interest because they did not understand percentages (Feldman, 1991). Indiana University researchers found that as many as one out of every five employees in the workplace today can't read beyond eighth-grade level (Feldman). These skill shortages will hurt U.S. employers as the external competitive environment intensifies.

According to Feldman (1991), the majority of American employers spend only 0.5 percent on worker training, while other European and Asian companies use a mix of tax incentives and infrastructure to support workforce learning and other continuing education. Feldman further cites French law requiring all employers commit at least 1.2 percent of payroll towards training. There are no such government-defined requirements in the United States, which can be noted as a potential cause of the further erosion of U.S. dominance in a global economy. Friedman (2005) supports this by describing that America's labor force must be constantly adapting to higher-value-added jobs in order to remain viable in the global marketplace.

Partnerships between higher education and industry corporations can be a useful strategy in providing workforce training and maintaining knowledgeable employees. This study has important implications for the formation of future workforce development partnerships by providing additional understanding and applicability for these types of partnerships. The study also allows the

benefits of these types of partnerships to be reviewed and illustrates how they will allow corporations to remain competitive in the global economy.

Conceptual Foundation

This study is supported by considering what we know about the notion of "partnering" and how collaboration among stakeholders can produce positive outcomes. The existing literature about workforce development and how it has evolved over previous decades is essential to understanding how today's industry corporations and partners in higher education might meet the needs of a complex, global work environment. To clarify what this case study hopes to provide, the following definitions are offered.

Definition of terms.

- Corporation: a specific organization in private industry whose primary purpose is to buy or sell a good and/or service to others. In this study, the corporation under study was Plastipak Packaging.

- Higher education institution: post-secondary, accredited, degree granting two and four-year colleges and universities including junior colleges, community colleges, technical colleges, and research universities. In this study, the higher education institution under study was the University of Akron's Medina County University Center.

- Industry: a descriptive collective name of all for-profit businesses. In this study, the industry corporation under study is Plastipak Packaging.

- Industry – higher education partnership: a partnership is a relationship involving close cooperation and joint rights and responsibilities between an industry corporation and a higher education institution that produces mutually beneficial outcomes. Defined by Orr (2001) as a "strategic joint relationship between two or more organizational entities" (p. 41). Academic/industry relationships consist of arrangements between for-

profit corporations and academic institutions in which something of value is exchanged (Blumenthal, 1994). For this study, the partnership involves the University of Akron's Medina County University Center and Plastipak Packaging.

- Workforce: the available workers engaged in a specific activity or enterprise for a single company or industry. In this study, the workforce is as perceived by the two primary organizations involved.

- Workforce development: training and development activities offered to the workforce to improve their knowledge, skills, job placement or job recruitment (Anonymous, 2007a). In this study, workforce development are the activities conducted jointly by the partners, whose focus was the Polymer Certification Program.

Summary

Partnerships exist in many forms for various purposes. A partnership can exist between a corporation and a higher education institution to provide training and development activities for the workforce allowing the organization to remain competitive. The research questions posed in this study serves as a guide for reviewing an existing industry – higher education partnership including its purpose, formation structure, and organizational benefits and challenges. By reviewing workforce development, collaborative partnerships, and industry – higher education partnership topics, this study provides insight into how United States corporations can utilize industry – higher education partnerships to train their workforce and compete successfully in the global economy.

Chapter 2 – Review of Literature

This chapter provides an overview of the current literature associated with the key concepts included in this study: workforce development, collaborative partnerships, and industry – higher education partnerships. The workforce development analysis includes government provided programs, the changing workforce, and workforce development expenditures. A review of the different types of collaborative partnerships is examined including federal, state, and local government; private businesses; and community organizations. This section concludes with a review of current industry – higher education partnerships that include their purpose, formation structure, and organizational benefits and challenges.

Workforce Development

Workforce development can include multiple activities, programs, or policies related to employees working and learning. The National Collaborative on Workforce & Disability/Youth defines workforce development as encompassing

> …organizations at the national, state, and local levels that have direct responsibility for planning, allocating resources (both public and private), providing administrative oversight and operating programs to assist individuals and employers in obtaining education, training, job placement, and job recruitment (Anonymous, 2007a).

Often workforce development activities are what allow an organization to maintain a competitive advantage. Since today's working environment is made

up of global competition, advanced technology, workforce diversity, and the transition of two generations into retirement, continuous training of employees is needed (Gunderson, 2005). Providing continuous training and development for employees is a challenge as the workforce demographic continues to evolve and the financial impact of keeping skilled employees grows.

Government workforce development programs. Providing jobs for American workers has been a focus of the federal government since 1935; however, the methods used to secure the skills necessary for employing American workers has evolved over the years. This evolution in workforce development programs can be seen through the Works Progress Administration (WPA) passed in 1935 to address the massive amount of unemployment in the country to the Jobs Training Partnership Act passed in 1978 that focused on responding to the challenges of the deindustrialization of America (Unknown, 2006).

During the depression, President Roosevelt created the first federally funded jobs program, the Works Progress Administration (WPA), which spanned from 1935-42. The WPA provided publicly funded employment and training opportunities for adults. The Manpower Development and Training Act (MDTA) was created in 1962. This legislation focused on retraining workers who were displaced by technological change and on training disadvantaged workers. Throughout the 1960s, additional training initiatives were implemented creating a system of multiple programs administered centrally. The Comprehensive

Employment and Training Act (CETA) was passed in 1972 with a focus on anti-poverty programs geared to addressing the social unrest found in urban settings. CETA consolidated existing programs and instituted federal block grants to increase state and local control over how employment and training funds would be spent.

While the federal government provided oversight, local governments and training providers had tremendous input and control. In 1978 new legislation moved authority away from the community and more towards state government. It also gave a formal role to business groups through the development of Private Industry Councils (PIC). PICs were comprised of private and public sector representatives who oversaw the workforce development system.

The Jobs Training Partnership Act (JTPA) was passed in 1978 in response to the economic challenges of that time which included the deindustrialization of America and large-scale losses of manufacturing jobs primarily in the auto and steel industries. Two new programs were funded: a program for dislocated workers and a training program for disadvantaged adults. JTPA also saw a transition to greater oversight responsibility to the states. It also increased the power of the business community on the Private Industry Councils (51% of PIC members must be from business) and increased the PICs' role in controlling workforce development. JTPA utilized community colleges as well as a range of

non-profit and community-based training providers to provide services. JTPA had a human service approach, which focused on identifying an individual's need and providing those services.

The Workforce Investment Act (WIA) was passed in 1998 and its focus was to help address the challenges of a global economy. Rather than focusing on the individual and their needs like JTPA, WIA focused on the needs of the company and how to make companies and industries more productive. WIA gives state and local government the primary responsibility to implement all programs and mandates an even larger role for business led decision-making. A major goal for WIA is economic development for the business community obtained by growing companies and increasing the number of jobs (Unknown, 2006).

Perhaps the single greatest difference between WIA and its' predecessor, the Job Training Partnership Act (JTPA), is the new emphasis on serving the universal job seeking population. Any person who is interested in improving their job skills can seek support from WIA sponsored programs. Under WIA, all individuals have a right to "core" services, which include information about job vacancies, career options, student financial aid, relevant employment trends, and instruction on how to conduct a job search, write a resume, or interview with an employer. Government support of workforce development programs have a long history in the United States in preparing employees for the skills they need.

The changing workforce. Educating workers is an ongoing challenge for corporations especially as the demographic characteristics of the workforce continue to evolve. The United States job market is experiencing a shortage of skilled workers that is expected to increase in the foreseeable future (Jones, 1988; Tulgan, 2001). In December 2007, the unemployment rate stayed at 4.5 percent, but the rate for college-educated workers was just 1.9 percent producing a substantial gap in available workers. Some reasons for this shortage include globalization, the ageing of the workforce, and a lack of availability of skilled workers (Isidore, 2007).

As the United States continues to move to an information economy, the demand for skilled workers will continue to rise. Competing in a global marketplace allows the redistribution of highly skilled and low skilled workers. Due to technology advances, corporations can move highly skilled, highly compensated jobs to countries that produce the most valuable workers. This also allows corporations to move low skilled, poorly compensated jobs to countries with the lowest wages (Drucker, 2001). There will be 15% fewer Americans in the 35 to 45 year-old range in 15 years than currently exists today. The U.S. economy is projected to grow at a rate of 3% to 4% per year. So over that period of time, the demand for bright, talented 35 to 45 year-olds will increase by approximately 25%, and the supply will be going down by 15% (Fishman, 1998).

Providing training and development opportunities to retain the most talented employees will be key to a businesses' continued success.

Workforce development expenditures. In 2002, between $3.2 billion and $5.3 billion was spent on job training by the federal government, and state governments spent another $500 million to $700 million a year on training. Businesses spend considerably more on training than do the federal and state governments combined--between $46 billion and $54 billion a year in total training-related spending (Mikelson & Nightingale, 2004).

Industry spending on employee learning and development increased to $109.25 billion as estimated by the American Society for Training and Development (Rivera & Paradise, 2006) with nearly three quarters ($79.75 billion) spent on internal learning activities, and the remainder ($29.50 billion) spent on external services. In 2006, the average annual expenditure per employee was $1,424. The average number of hours of formal learning per employee was 41 hours with an average cost per learning hour of $1,101 (Rivera & Paradise). This represents a sizeable investment in employee training and development.

Higher education institution's historical focus has been to provide a formal education and technical training consisting of a four-year baccalaureate degree that prepares a worker to enter the workforce in various occupations. The College Board's *Annual Survey of Colleges* (Baum & Payea, 2006) confirms the perception that college prices are rising much more rapidly than the prices of

other goods and services. Average total tuition and fees at four-year public colleges and universities in 2006-07 was $5,836, a 6.3 percent increase over the previous year. Average total tuition and fees at four-year private colleges and universities in 2006-07 was $22,218, a 5.9 percent increase over the previous year. Since 2001-02, there has been a 35 percent jump in inflation-adjusted average tuition and fees for in-state students at public four-year colleges. This increase is higher than any other five-year increase since 1976-77 (Baum & Payea). There is great variability in costs across states, regions, sectors of higher education, and specific institutions, but these increases mean that it is more difficult to obtain a college degree. These additional costs create financial barriers that reduce the number of college graduates, thereby reducing the available pool of educated workers that are available for employment.

Integrating an employee's training and development activities to include formal (higher education institution) and informal (corporation) is needed to obtain the most qualified workers at the lowest cost. This integration of employee development activities supports collaborative efforts between higher education institutions and corporations to participate in workforce development partnerships.

Collaborative Partnerships

Workforce development partnerships are one method to meet this skills shortage. Partnerships can be found in government, private business, and community organizations.

Government. The Missouri Department of Economic Development used $1.5 million from the federal Workforce Investment Act to help up to 950 displaced autoworkers from a local Ford factory. Idled workers can receive supplemental unemployment benefits and other compensation through the funding being provided. The base hourly wage for an auto assembler is $26 an hour. However, most of the workers who have been paid a high wage do not have college degrees, which can hurt them in finding a new job. St. Louis Community College has eight staff members dedicated to working with Ford employees. They can give aptitude tests and other screening exams; provide help in writing resumes and letters; and searching for jobs. The college also offers about 90 degrees and certificates which Ford workers can earn (Hudson, 2006).

Employees who face layoffs from Andrews Wire in South Carolina will be eligible for retraining through funds provided through the Workforce Investment Act. Retraining of laid off workers will be coordinated with Horry-Georgetown Technical College and the local One-Stop Center to assess worker's

skills and aptitudes so that they can receive training in professions which most closely match their current skill set (Marshall, 2006).

Shell Solar Industries, based in Washington, took advantage of state funding provided through the Workforce Investment Act to team with Clark College to cross-train several categories of its employees. The local Workforce council spent $23,000 to help Shell Solar Industries improve the knowledge of its employees. One example of the training provided gave a mechanical maintenance worker and mechanical specialist the skills for each to do the other's job. Georgia-Pacific created a similar training program with Longview Community College to increase the skills of its younger employees in preparation of a coming wave of retirements. The local Workforce council spent $34,000 on the project (Nelson, 2005).

Private business. Private sector businesses invest in developing worker's skills so they can remain competitive in the marketplace. This is a benefit to the company as well as the employee. There are many examples of private workforce development initiatives where an individual company seeks out a higher education institution to help develop the skills of their workers.

An example of an established partnership which began in 1991 exists between SUNY's Empire State College and the New York Telephone company (Johnstone, 1994). These two organizations designed a corporate/college program in which non-traditional adult students were given the opportunity to

complete associate and baccalaureate degree programs while working full time for the company as a customer service representative. All classes were conducted at the worksite and New York Telephone paid all expenses, while qualifying students contributed fifty dollars a month into an escrow fund, which was returned to them upon completion of the program.

Empire State committed staff and resources to help design the program from recruiting to curriculum to instruction. Results show the workers completing the program are now among the best salespeople in the company. New York Telephone has seen a dramatic improvement in speaking, writing, and problem solving skills. Another benefit has been the boost to employee morale as existing employees were involved as tutors and formed mentoring relationships with the employees who were recruited for the program.

Another example is the Kentucky Community and Technical College and Toyota partnership started in 1998 and still going strong as of 2006 (Pluviose, 2006). When Toyota built a manufacturing plant in Georgetown, Kentucky, the college established a skill trades training program on site which is available not only to Toyota workers but to the community as well. This provides the company with a continuous supply of trained automotive manufacturing workers and a method to upgrade the skills of its existing workforce on an ongoing basis. This plant recently celebrated the production of its five millionth vehicle and is now Toyota's largest plant in the United States.

Community. Community partnerships can take a variety of forms and involve a wide range of organizations. Some examples of workforce development partnerships include colleges and businesses partnering with the local Chamber of Commerce, environmental alliances, public school systems, workforce boards, non-profit job training centers, libraries, ex-inmate assimilation programs, and faith-based and community organizations as well as other civic/community organizations (Marrow & McLaughlin, 1995; Nolan, 2007; Savan, 2004; Soukamneuth & Harvey, 2007).

Community partnerships can follow several different partnership models including recruitment, training, work-based learning, post-placement support and corporate philanthropy. The most common way in which businesses partner with faith based community organizations is to recruit qualified workers. Job training may include soft-skills training and basic education or technical skills training for specific jobs. Work-based learning primarily entails on-the-job training and some of the employee's wages can be paid for by funds from the sponsoring organization. Support services for job seekers and newly hired workers may include emergency food, clothing, and transportation assistance as well as childcare programs. Using a corporate philanthropy approach, businesses provide funds to the community organization so they can provide employment and training services which may increase the overall skill level of the labor pool (Soukamneuth & Harvey, 2007).

Soukamneuth & Harvey (2007) provide several examples of community partnerships. One example of a community partnership is CVS Pharmacy who collaborated with a number of churches to recruit employees through church-based job fairs. The Gateway Corporation collaborated with a number of non-profits to fill its labor needs for a new plant in Virginia by collaborating with organizations that could help train and refer skilled job applicants. The Cessna Aircraft Co. created an internal program called 21st Street Project, which is a comprehensive job-training program targeting welfare recipients and other community residents in need of work. Another example of a community partnership is that of Pennzoil 10 Minute Oil Change working with San Francisco Works to train workers for its automotive training program. Employees who are referrals from the program showed better retention and loyalty than those hired through traditional methods.

Some of the benefits of community partnerships are helping businesses identify a pool of high quality job applicants who are eager and motivated to work. Businesses can also realize substantial cost savings in recruitment and hiring through pre-screening and fundamental skills training being provided by the organization. Partnership activities can also enhance public relations in the community. Several of the challenges associated with these types of partnerships are overcoming negative stereotypes of faith-based and community organizations and its constituents, the time and effort of committing resources to

developing and managing external partnerships, securing staff buy-in, understanding the culture of faith-based and community organizations, and achieving sustainability and acquiring funding (Orr, 1999; Pumphrey, 1998; Soukamneuth & Harvey, 2007).

Industry – Higher Education Partnerships

Industry – higher education partnerships are a tool that has been used by multiple types of organizations to address the learning needs of its employees. Maintaining a partnership is a complex process and involves many moving components to manage for both organizations. Industry – higher education partnerships allow each organization to retain its own core competencies, governing structure, and mission, while expanding the knowledge and capabilities of each organization. There are varying factors in each partnership, which may include their purpose, formation structure, and organizational benefits and challenges.

Purpose. Collaborative efforts between higher education and industry corporations can take many forms. Some of the most common industry – academic partnership relationships are research, consulting, patenting or licensing, equity, strategic alliances, and training (Blumenthal, 1994; Orr, 2001). They may also have a focus on research support, cooperative research, knowledge transfer, and technology transfer (Elmuti, Abebe, & Nicolosi, 2005). Additional partnership purposes include sponsored research, collaborative

research, consortia, technology licensing, and the exchange of research materials ("Working together," 2001). Partnership purposes can also include:

1. "…research and knowledge exchange, consulting, project planning, involvement in curriculum development, training, workshops or seminars, and executive education" (Elmuti et al., 2005, p. 96),
2. "…provide a knowledgebase, expertise, information exchange, and technology transfer…"(Suri et al., 1995, p. 9),
3. professional development, academic and vocational-technical skill assessment, college and career counseling, and retraining of employees (Orr, 2001),
4. supplementing research funds, furthering the university's outreach mission, gaining knowledge about practical problems useful for teaching, seeking business opportunities for higher education, developing new products and processes, improving product quality, gaining access to new research, and finding future employees (Yong, 2000).

Partnerships can last for different lengths of time and include different types of participants. Research partnerships can have a consultative, contractual, or collaborative purpose (Savan, 2004). Consultative partnerships normally last for one academic term or year and focus on solving a specific problem; defining, or developing a policy; and generally involve university students completing co-op or internship programs. Contractual partnerships typically last from one to

three years and focus on research design and publication, and actively involve the faculty in problem solving. Collaborative partnerships can last for more than three years, and involve a series of projects that may or may not be interrelated but need a joint approach and active participation of multiple faculty and industry members.

The federal government began promoting industry –academic partnerships with the Bayh-Dole Act of 1980, which enabled university and small-business contractors and grantees of the federal government to receive title to patentable inventions made with federal support (Blumenthal, 1994). This law was especially favorable to biomedical sciences companies focused on the creation of pharmaceuticals. In 2007, the U.S. Department of Labor awarded 72 community college partnerships $125 million for successfully competing under the Community-Based Job Training Grants Initiative (Anonymous, 2007b). The grants will help increase the capacity of community colleges to provide training to workers for high-growth and high-demand jobs. These differing purposes provide a unique basis for the structure in which partnerships are formed.

Formation structure. Before forming a partnership, there are multiple decisions to address. The partnership leaders should determine if there is any conflict with other funding sources between the two organizations, how technology ownership and licensing will be divided, how royalty rates will be determined, the funding process for the partnership, and the publication rights

of each organization (Gilliland, 1985). Following a pre-existing formation framework can lead to a successful partnership. Several authors provide a successful implementation framework. Cobb, et. al (1998) identified matching partners carefully; selecting team members for added value; providing the needed tools, training, and leadership; supporting ongoing resource needs; and regularly reviewing progress against partnership goals as techniques to use in establishing a partnership. Elmuti, et. al (2005) concurred with this assessment by identifying partner selection, senior management commitment, and clearly understood roles and communication between partners as being essential.

Meister (1998) adds that developing a shared vision, selecting partnership criteria, creating a business plan, and defining a pilot partnership offering are the framework steps to be followed.

1. When developing the shared vision, both organizations define how the partnership will operate in terms of expectations, processes, outcomes, and support systems.
2. Criteria that can be used to select a partner include: flexibility and responsiveness in building a partnership; complementary needs and goals; intellectual property ownership rights; financial and non-financial measures; infrastructure to support the partnership; a shared mindset relating to customer service, innovation, and continuous improvement; and a commitment to ongoing communication.

3. Developing a business plan will outline the goals, strategies, and implementation methods needed to achieve the vision.
4. Once the planning phase has been completed, selecting the right pilot project to implement as the inaugural partnership project can be a good test case to lay the groundwork for future successful projects (Meister, 1998).

These phases are supported by Orr (2001) who outlines problem setting, direction setting, and structuring as the partnership phases. Depending on the activities that were included in partnership formation, the organizations involved can experience differing organizational benefits and challenges.

Organizational benefits and challenges. Benefits to both types of organizations can include expanding their reach within the community or industry, providing opportunities for access, identifying new opportunities for generating income, and establishing a way to maintain the organization's independence in the marketplace (Peter, 2003). Other partnership benefits derived have included: addressing the current and future skill needs of employers, developing career pathways for low-skilled workers, encouraging innovation, gaining additional research expertise, and enhancing economic development activities ("Department of Workforce Development," 2007; "Gov. Richardson applauds," 2005).

Documented benefits from biomedical science partnerships can be advances in public health, economic in the form of patents and royalties, and scientific and educational benefits in increased research publications, and additional training and development for faculty, students, and employees (Blumenthal, 1994). University students and faculty benefit as they learn about the needs of industry and gain real-life exposure to practical problem-solving experiences that they will not encounter in the classroom (Suri et al., 1995).

Universities can also benefit from gaining financial support, providing students and faculty with working experience, enhancing regional economic development, and increasing employment opportunities for students (Marrow & McLaughlin, 1995; "Working together," 2001). Industry organizations benefit from accessing expertise not available corporately, gaining access to students as possible employees, leveraging internal research capabilities, and gaining a competitive advantage in research. Industry can also benefit by lowering research and development expenditures, increasing innovation in products and services, and shortening product life cycles to compete better in the global marketplace (Elmuti et al., 2005).

Some challenges to a university participating in a partnership can be university officials' lack of understanding of how companies operate, differing time horizons of the two organizations, the difficulties in negotiating and maintaining a collaborative effort, and a possible negative impact on the mission,

finances, or reputation of the university ("Working together," 2001). Other challenges can be the changing role and norms of universities, real or apparent conflict of interest on the part of academicians and universities involved in industry – academic relationships, reduced trust of universities, reduced federal support, and greater dependence on industry funding to sustain the academic research effort (Blumenthal, 1994).

Challenges to an industry corporation can be integrating university research into the product development process, loss of control of proprietary information, and the lack of skilled people and processes to manage a collaborative partnership ("Working together," 2001). Other problems can be cultural differences, lack of communication, a change in strategy, and differing objectives and goals (Elmuti et al., 2005; Johnstone, 1994). Despite these challenges, many industry – higher education partnerships have been successful.

Partnership examples. Examples of workforce development partnerships are discussed throughout the literature. The partnerships described support the purpose, formation structure, benefits, and challenges illustrated previously. An example of a workforce development partnership is the Monsanto Company and Washington University, who have collaborated since 1981. This partnership has resulted in more than $100 million in research funding and 180 to 190 patents. What makes this partnership so successful? The people involved in the partnership say communication and understanding of each other's goals is

critical. Each organization needs to reach the goals that it has determined for an ongoing partnership to advantageous. Benefits of this partnership have been personnel exchanges, networking opportunities, hiring of graduates, access to a broad range of scientists, and research funding ("Working together," 2001).

The DeVry Institute of Technology works with local employers in Kansas City, Missouri to update curriculums to match the trends in the marketplace. This provides insight to the businesses on future shortages of skilled workers and information to academia on future workforce development needs. Dowling Institute collaborates with FedEx by offering an MBA for executives at their New York worksite location. They also provide undergraduate business courses. The convenience and availability of on site courses has prompted FedEx to investigate forming partnerships at other locations such as Memphis and Atlanta (Leach, 2001).

Rio Salado College currently partners with more than 40 corporations, government agencies, and associations on workforce development initiatives. Their longest corporate partnership is with U.S. Airways who has worked with the college since 1990. Because Rio Salado abandoned the semester system, classes start 26 times per year providing the flexibility and availability of meeting the various schedules that flight personnel maintain (Bird, 2006).

South Texas College has trained more than 36,000 workers for 400 local and national employers by collaborating with business and community partners.

They describe their key to success as the commitment from residents and employers in supporting workforce development activities to keep the economy viable in one of the poorest areas of the state (Garza, 2006).

The Missouri Hospital Association and the Saint Louis University nursing program joined together to expand the number of nurses produced with baccalaureate degrees by 75% to offset the critical shortage of nurses. The hospital provided classroom space and skilled clinicians as faculty while the university employed an instructional designer to convert the existing master's nurse educator program into an online format to increase the number of students who could complete the program (Murray, 2007).

Baxter Pharmaceutical and the Greater Bloomington Chamber of Commerce will provide management-training skills to local workers focusing on communication and conflict resolution through grants provided by the Indiana Department of Workforce Development and Indiana Economic Development Corp. The grant enabled the community and multiple Indiana businesses to provide additional training resources to their employees (Nolan, 2007).

Ford, Boeing, and Northwestern University formed a nanotechnology alliance to research and develop commercial applications. Ford invested $10 million in a new $30 million engineering and applied science design center on Northwestern's campus. This alliance will lead to additional research in energy reducing transportation methods (Roach, 2005).

The National Alliance of Business (NAB) is an independent, business-led, nonprofit corporation that promotes partnerships among business, labor, government, and education organizations to research workforce issues. The NAB has partnered with multiple corporations (Motorola, Eastman Kodak, Southern Maine Technical College, Bank of America, IBM, and United Parcel Service) to build workplace learning systems, school-to-work programs, workplace literacy, and a basic skills program for welfare recipients among others (Vanneman, 1992).

The partnership examples above suggest that even though workforce development partnerships vary greatly, they all seek the common goal of improving the knowledge and skills of the workforce. Corporations who foster learning in their employees will become better performers and decision makers that can ultimately achieve the goals and objectives of the organization and compete competitively in the global market.

Summary

The literature reveals workforce development, collaborative partnerships, and industry – higher education partnerships are an active part of today's learning environment. The federal government has participated in job training and development activities for many years. Workforce demographics continue to change and employee development expenditures are rising. Job training is provided by many different sources including federal, state, and local

government; private businesses; and community organizations. Collaborative partnerships exist between multiple types of organizations, all striving to improve the economic development opportunities within their community and provide the right skills for local workers to compete in the marketplace. Industry – higher education partnerships exist to improve the skills of employees but may have differing purposes, formation structures, and organizational benefits and challenges. This study seeks to add to the literature on industry – higher education partnerships and the study outcomes can be used as a tool to guide future corporations and higher education institutions in establishing their own partnerships. As described in subsequent chapters, this research examined the formation process of an industry – higher education partnership, the processes used to communicate and share information, the perceived and actual benefits shared between partner organizations, and the challenges that arose between the partner organizations and how they were resolved.

Chapter 3 – Methods

Research Design

Qualitative research, as described by Creswell (1998), is an inquiry approach that explores a social or human problem in which the researcher describes and reports on the problem in a natural setting. According to Creswell, five of the most frequently used methods are biography, phenomenology, grounded theory, ethnography, and case study. A case study approach is used for in-depth exploration of a single program, event, person, or activity. Stake (1995) explains it as bounded by a specific time period and activity, and can accommodate a variety of data collection procedures. The case study approach was chosen for this study as it supports the attributes described previously as well as it "consists of making a detailed description of the case and its setting" (Creswell, 1998, p. 153). This method is appropriate for this case study because it allowed the researcher to describe the partnership outcomes, formation, benefits, and challenges in sufficient detail to reach conclusions.

In alignment with the purpose, the following research questions provided the focus of the study:

1. What activities were involved in forming this industry – higher education partnership?
2. What is the process these partners use to communicate and share information?

3. What are the perceived and actual benefits shared between partner organizations?
4. What challenges have arisen between the partner organizations and how were they resolved?

Sources of Data

Two primary sources of data were examined for this case study, and these sources included, but were not limited to, the partnership stakeholder perceptions and artifacts from the partnership. The stakeholders included staff members of the higher education institution and the personnel at the industry corporation who were involved in partnership activities. Artifacts collected included committee meeting notes, grant proposals, and emails.

Target Population

The population involved in this case study were the staff members of the higher education institution and the selected industry corporation. The higher education institution involved in this research study was the University of Akron Medina County University Center. The University of Akron is located in Summit County in Akron, Ohio and was founded as Buchtel College in 1870. The University offers certificates, Associate, Baccalaureate, Master's, Doctoral, and Juris Doctor degrees and have a current enrollment of 24,704 students. The University is a partner, along with community and business leaders, in the University of Akron Medina County University Center, which is a 33,000-square-

foot facility offering college classes and workforce training located in Medina, Ohio. The University Center was founded as a center of innovation with leaders and citizens of neighboring Medina County to offer core college courses, professional development workshops, and workforce training within the county. The University Center is the only permanently located facility offering higher education courses within the county.

There were multiple industry corporations involved in the partnership, but the corporation who agreed to participate in the research study was Plastipak Packaging. Plastipak Packaging is an international plastics manufacturer who produces plastic rigid containers. They are considered an industry leader in the design and manufacturing of plastic containers, producing beverage, consumer cleaning, food and processed drinks, and industrial and automobile plastic containers. One of their plastics manufacturing facilities is located in Medina, Ohio, and individuals from this facility participated in partnership activities.

Thirteen individuals were identified as having significant involvement in partnership activities. Nine of the thirteen members agreed to participate in the study resulting in a sixty-nine percent participation rate. This participation rate provided the researcher with confidence that the views of all parties were adequately represented and that the research participants were knowledgeable concerning the partnership under study. There were seven participants from the higher education institution and two participants from the industry corporation.

The outcome of the partnership under study was the Polymer Certification Program. This program was developed jointly by the higher education institution and local plastics manufacturers to improve employee skills. To gain access to both organizations, a willingness to participate email was sent to all members of both organizations to gauge interest and it can be found in Appendix A.

Data Collection Strategies & Instruments

The data collection strategy for this study followed Creswell's qualitative inquiry data collection model (Creswell, 1998). The activities of this model as adapted for this study were locating a partnership, gaining access and creating rapport, collecting data, recording information, resolving field issues, and storing data. The partnership under study was located through an existing relationship that the researcher had through her professional employment as a training and development instructional designer. Access to the partnership was obtained through communications with the university's Provost Office and rapport was built through volunteer involvement in curriculum planning committees with the researcher's employer. Data were collected through artifact analysis, a stakeholder survey, and follow-up interviews. Instruments used to collect stakeholder data included a data capture worksheet, an electronic survey tool, and interview questions.

Typical data collection issues arising during field research are the need to change or adjust the form of data collection, inexperience of the researcher with collection methods, and inadequate time allocated to collect data (Creswell, 1998). In order to resolve any issues that may have arose during the data collection process, the researcher iteratively developed and piloted the research study instruments. The researcher also participated in a mock interview once the interview form was developed to help prepare for the interview process. Allowing sufficient time to complete the data collection process was evaluated throughout the research process. By following a sound data collection strategy, the researcher was able to gather relevant information that adequately answered the study's research questions.

Artifact analysis. Partnership artifacts were gathered through requests to stakeholders for documents that would help explain certain aspects of the partnership. Anticipated documents included meeting minutes, marketing materials, course curriculum, partnership planning documents, and any partnership contracts outlining the agreed upon duties and expected activities of each partner. Actual documents collected during artifact analysis were meeting minutes, marketing materials, and the Polymer Certification program curriculum. Any identifying information describing individual participant names in these collected artifacts was stricken from the document to protect their

privacy. Data collected through the artifact analysis was copied and scanned to ensure a backup copy was available to the researcher.

Data capture worksheet. The data capture worksheet was developed to assist with the artifact review process. The purpose of the worksheet was to track the documents being reviewed, and to categorize the themes found in the documents as they relate to the study's research questions. The data capture worksheet can be found in Appendix B.

Survey procedures. A survey instrument was designed to collect information from the two stakeholder groups using an automated data collection tool – Survey Monkey. The survey items addressed the research questions of this study as related to the partnership outcome, formation, communication methods, benefits, and challenges. The results from the survey instrument were stored online in the survey provider's database and were also exported from the survey tool and stored on an external hard drive. The data from the survey is readily available for additional analysis.

Survey tool. The survey was used to gain initial information about the workforce development partnership. The survey was administered online with responses collected electronically. Survey items were a combination of both open and closed response items. Closed response questions were ranked items. The survey contained questions related to how the partnership was formed; how the partners have communicated and shared information; what perceived, and

actual benefits were gained; and what challenges occurred and how they were resolved. Several of the questions on the survey were adapted from an existing questionnaire previously used in evaluating industry – university partnerships (Heidrick, Kramers, & Godin, 2005). The survey tool can be found in Appendix C and the permission to adapt the instrument can be found in Appendix D.

To determine usability of the survey instrument, the survey instrument was piloted with three individuals. The individuals who piloted the instrument were selected based on their accessibility, availability, and experience. They possessed professional work experience as well as familiarity with using online surveys. The purpose of usability testing was to evaluate whether the survey's format could be easily used and the time needed to complete the instrument.

Interview methods. After the survey information was collected, follow-up interviews were conducted with participants to collect more in-depth information on issues raised from the survey results. Interviews were semi-structured and the researcher recorded the interview when there were no objections from the stakeholder being interviewed. The audio recording of the interview aided the researcher in reviewing the topics discussed in the interview and was stored electronically to an external hard drive. Notes taken on the interview form during interviews were transcribed and also backed up to an external hard drive.

Interview questions. Interview questions were a part of an emergent design based on survey responses. The purpose of the interview questions was to collect the experiences of the stakeholders during the partnership and gather narrative stories about the partnership, as well as provide clarification of the survey responses. Following the analysis of survey responses, seven interview questions that prompted more in depth understanding were created. These questions focused on the partnership formation process and the participants' role, clarifying questions regarding the Polymer Certification program, partnership challenges, and partnership feedback. An interview form was designed and used during the interview process and can be found in Appendix E.

Interviews could have taken the form of face-to-face, in-person interviews; telephone or email interviews; or group interviews. The interview format was determined by what was most practical and provided the greatest value in answering the research questions. The interview format chosen was face-to-face, in-person interviews. The interviews included open-ended questions designed to collect opinions, thoughts, and perceptions and provided the flexibility to ask additional questions from the responses received. Based on the information collected, topical or thematic analysis was used to interpret and report the stories collected.

The factors influencing stakeholder selection for an interview included but were not limited to extremely negative or extremely positive ratings from the survey responses, intriguing or unexpected responses to open-ended questions, and the researcher's perception of the potential value to be received from interviewing a specific respondent.

Three participants were chosen for face-to-face interviews. Two participants were from the higher education institution and one participant was from the industry corporation. The face-to-face interviews were conducted at the interviewee's jobsite to make the location convenient to both the researcher and the interviewees. Interview dates and times were arranged so that they were opportune to the interviewees and the researcher. The interview location chosen was quiet and private so that audio recordings of the interview could take place.

Human Subjects' Considerations

There was minimal risk to the participants of this study as the data being sought posed little or no risk to personal or professional activities. Responses were held in confidence and in no way could threaten the employment relationship of respondents. In order to protect the study participants from any risk of harm, several precautions were taken. The risks to the participants were minimized through the confidentiality of the data. Only the researcher knows the names associated with the data collected on the survey and in interview responses. Interview responses documented in the final report were not

attributed to any one specific individual. Additionally, interview responses were not disclosed by the researcher to any third party. Artifacts collected were not attributed to any specific participant but were only identified by organization name from which the artifact was obtained. The names of participants were confidential and only known to the researcher during the data gathering process.

The proposed study was submitted to Pepperdine University's Graduate and Professional Institutional Review Board (IRB) as meeting the requirements for exempt status under Pepperdine University's IRB guidelines by complying with IRB category four "Research, involving the collection or study of existing data, documents, records, … ." (Hall & Feltner, 2005). Approval was obtained in May 2008, see Appendix F.

The IRB of the higher education organization was contacted and they requested approval from the Pepperdine IRB before advising the researcher on how to proceed. Upon receiving exempt approval from Pepperdine, the IRB application, approval letter, and the partnership participant approvals were forwarded to the University of Akron IRB. In May 2008, the University of Akron IRB administrator and the IRB Chair examined the materials, and agreed that the researcher would not need to go through a review process at the University of Akron, see Appendix G.

Analysis

According to Stake (1995), data analysis for case study research can commonly be completed using detailed descriptions of the case, categorical aggregation, and naturalistic generalizations. Detailed descriptions provide the setting, participants, and interactions needed to gain background of the case being studied. For this study, a detailed description of the series of events that occurred during the partnership formation and a description of the activities and outcomes of the partnership are supplied to provide the context and setting for the case. This data was collected through the artifact analysis, the survey, and face-to-face interviews.

Categorical aggregation is the aggregation of individual instances until a conclusion can be made about them as a group (Stake, 1995). A naturalistic approach is used when the researcher wants to minimize manipulation of the case by studying natural field settings (Patton, 1997). Using categorical aggregation, common themes and patterns within the data collected were identified based on recurring words, similar phrases, and general meanings communicated in the content. Some of the common themes that occurred were curriculum development, timelines of project completion, incumbent worker training, communication delays, employee skill improvements, and better initial agreements.

Throughout the data analysis, naturalistic generalizations for this case are shared. Naturalistic generalization can be defined as arriving at conclusions through personal experience or by vicarious experience so well described that the person feels as if it happened to them (Stake, 1995).

The analysis of the artifacts occurred through the constant comparative method of data analysis (Glaser, 1999). This method consists of the researcher identifying information by concept and then later grouping and categorizing it. Concepts that were analyzed included partnership formation, partnership communication, industry corporation benefits, higher education institution benefits, industry corporation challenges, and higher education institution challenges. Each of the concepts analyzed were evident in each of the data collection tools.

Survey items were divided into four sections that address each research question in turn: partnership formation, partnership communication, partnership benefits, and partnership challenges. Some of the survey items were open-ended questions designed to capture detailed narrative-like responses, so a textual analysis process was used for interpretation. Several survey items involved subjects rating items on an importance scale. For these items, a frequency distribution of level of importance is presented. Other items presented them with responses where they could select all that apply. For these items, each selected item is reported with a frequency distribution. Still other

items provided opportunity for an open-ended responses which were later content analyzed and categorized. Categories are reported by frequency distribution. Specific questions for each section can be reviewed in Appendix C.

It was determined that three survey respondents would provide additional clarification after reviewing all survey responses. The researcher participated in a mock interview after the interview form was developed to help prepare for the interview process. Individual face-to-face interviews were conducted with each of the three respondents, and then thematic analysis was used to interpret and report the information collected.

Methods to ensure internal validity. To assess the accuracy of the research findings, two primary strategies were used: triangulation and member-checking (Creswell, 1998; Stake, 1995). Data source triangulation was completed by comparing patterns and themes found in the survey data and stakeholder interviews with the examined artifacts. Important themes that emerged concerned curriculum development, timelines of project completion, incumbent worker training, communication delays, employee skill improvements, and the need for better initial agreements.

Member-checking occurred through the interview process allowing any needed clarification following the survey. By examining the responses from the industry corporation and the higher education institution, it was possible to see the similarities and the differences of each partner's perception of the

partnership. The interview questions that were formulated validated the information found during the artifact content analysis by focusing on the key themes that were discovered. These strategies contributed to the internal validity of this study.

Summary

The research questions posed in this study provided an informative case study review to assist industry corporations and higher education institutions in forming future workforce development partnerships. This chapter discussed the research approach including study design, data sources, target population, and the data collection strategies and instruments used. It also described human subjects' considerations, the analysis approach used, and internal validity methods.

Chapter 4 – Results

The purpose of this research was to study an existing partnership, including their initial formation and the resulting workforce development relationship, between a higher education institution and a selected industry corporation. This chapter presents the findings of this study as a result of the data collection strategies outlined in Chapter 3. In order to provide a comprehensive picture of the partnership and its activities, the results first present a detailed description of the outcome of the partnership. The results are then organized around the four research questions posed for this study which were:

1. What activities were involved in forming this industry – higher education partnership?
2. What is/was the process the partner organizations use to communicate and share information?
3. What perceived and actual benefits were gained by the partner organizations?
4. What challenges have arisen between the partner organizations and how were/are they being resolved?

For this research study, two sources of data were used: partnership stakeholder perceptions and partnership artifacts. Data was collected through artifact analysis, a stakeholder survey, and follow-up interviews. The data

capture worksheet was used in artifact analysis to track the documents being reviewed, and categorize the themes found in the documents as they related to the study's research questions. The survey instrument was tested for usability with three individuals and it was determined that the survey's format was easy to follow and the time estimated to complete the instrument was adequate. Nine individuals participated in the survey. Seven respondents were from the higher education institution and two respondents were from the partnering industry. Several survey items involved subjects rating items on an importance scale. Other items presented them with responses where they could select all that apply. Still other items provided opportunity for an open-ended responses which were later content analyzed and categorized. Interview questions were developed that provided clarification of the survey responses, collected the experiences of the stakeholders during the partnership, and gathered narrative stories about the partnership.

One method used during the research was textual analysis. This provided a means to report on the content of the artifacts, survey responses, and interview responses and to categorize the results. Then common themes were identified across the identified categories. Specific methods used to ensure internal validity included subject verification of data and a constant comparison method of the information gleaned from the artifacts, survey, and interview responses.

A description of the partnership, the formation activities, the communication methods, the benefits received by the partners, and the challenges experienced are provided in each section of this chapter organized around the four research questions. Survey items addressed much of the data collected however, data was also gathered through the artifact analysis, and responses from the face-to-face interviews. All data collected was integrated and is reported together specific to each research question. Some survey respondents did not answer all questions posed, and thus the respondent count varies based on the number of responses received.

Partnership Outcome Description

The partnership between the University of Akron Medina County University Center and Plastipak Packaging resulted in a 128-hour polymer certification program. The polymer certification program comprises six core polymer courses and two courses in either the plastics or elastomers specialization. A detailed description of each of the courses in the certification program is described in the Polymer Certification Brochure in Appendix H. The stated purpose of the certificate program was to help front-line manufacturing employees gain the knowledge and skills that were necessary to enable them to make their companies more competitive and profitable. The program was offered using a cohort schedule and the first program was initially delivered to twelve incumbent workers.

The certification program was delivered via a blend of Web-based instruction, classroom sessions, and laboratory experiences. Through the asynchronous Web-based instruction, the employees could access the course via the Internet at a time that was convenient to his/her schedule. During the synchronous Web-based instruction, the employees were able to interact with both the instructor and other class participants in scheduled live chat sessions via the Internet. Finally, the employees attended periodic in-person classroom/laboratory sessions. These sessions gave the employees face-to-face interaction with the instructor as well as provided key hands-on experiences in a polymer lab.

The certificate program was partially funded through federal, state, and local grants. The funding for the development of the curriculum and on-line instruction was provided through a United States Department of Labor grant that the University of Akron Medina County University Center secured. These startup costs included the development of the training materials for each of the courses, marketing collateral to local industries and their employees, and instructional and administrative support. Student scholarships were provided through state and federal grants. Participating companies paid for the remainder of the tuition for their employees. The cost for each employee to complete the polymer certification program was $2,875. It is anticipated that ongoing costs

will include future curriculum revisions, instructor expenses, additional software to support the Web-based instruction, and employee travel time.

Research Question One - Partnership Formation

The emergence of the University of Akron Medina County University Center as a collaborative initiative helped to jumpstart the formation process. When analysis was completed on how the University could partner with the local industry, Medina County had many polymer related companies that needed similar training. Initial conversations for forming the partnership began in 2004 when a local polymer company experienced problems with finding qualified entry-level employees and they had a need to increase the skills of existing plastics manufacturing employees. The Human Resources staff at the polymer company reached out to the local workforce development center, Medina Works, for assistance. This led to working with multiple companies to address common training needs and the resulting polymer certification program. The participating industry corporations knew of the University but had not been in direct partnership with them previously. Medina Works was aware that the University of Akron had established an 18,500-square-foot Akron Polymer Training Center and instituted a Global Polymer Academy to reach out to the P-16 education environment. The University possessed faculty expertise as well as research facilities devoted to the polymer industry. Medina Works was able to direct the local businesses to the University as a resource.

During this same time, the University of Akron Medina County University Center was being constructed as the first higher education presence within the county. The formation of this facility was being driven through a combination of community outreach and regional economic development organizations in partnership within Medina County and the University of Akron. Since the University of Akron Medina County University Center was developed using a foundation of partnerships, developing a partnership to meet the educational needs of a local company was a perfect match.

In reviewing the data collected during the case study, there were twelve business drivers listed on the survey for forming the partnership with the option of adding additional business drivers not previously listed. As shown in Table 2, the highest percentage of responses for forming a partnership from both organizations was improving employee skills, retraining employees, knowledge exchange, and improving product quality. The additional business driver submitted by the industry corporation was the engagement mission of university. Additional business drivers submitted by the higher education institution were: our mission in workforce development was to support local businesses with the hiring, training and retention of quality employees and community service.

Table 2.

Partnership Formation Reasons

Partnership Formation Reasons	Higher Education Institution (N=7)		Industry Corporation (N=2)		Total (N=9)
	N	%	N	%	%
Research opportunity	0	0.0%	1	50.0%	11.1%
Knowledge exchange	4	57.1%	1	50.0%	55.6%
Workshop/seminar	2	28.6%	0	0.0%	22.2%
Technology improvement	1	14.3%	0	0.0%	11.1%
Employee skill assessment	1	14.3%	0	0.0%	11.1%
Career counseling	0	0.0%	0	0.0%	0.0%
Retraining employees	4	57.1%	2	100.0%	66.7%
New patents/licenses	0	0.0%	0	0.0%	0.0%
Improving product quality	4	57.1%	1	50.0%	55.6%
Gaining access to new research	1	14.3%	0	0.0%	11.1%
Finding future employees	3	42.9%	1	50.0%	44.4%
Improving employee skills	5	71.4%	2	100.0%	77.8%
Other business drivers (please specify)	2	28.6%	1	50.0%	33.3%

Additionally, when partnership members were asked to identify the business needs for forming a partnership, the narrative responses included forming collaborative relationships with area companies, increasing productivity for incumbent workers, piloting online instruction as a viable delivery method within industry, and addressing a training gap for local companies since there was not a local polymer-training program in existence.

The survey and the follow-up interviews indicated that both partners had very similar criteria when it came to forming a partnership. Table 3 illustrates that the ability to be innovative, flexibility and responsiveness, common needs and goals, a shared mindset relating to customer service and continuous improvement, and organizational leadership were highly valued traits by both organizations.

Table 3.

Partnership Criteria

Partnership Criteria	Higher Education Institution (N=7)		Industry Corporation (N=2)		Total (N=9)
	N	%	N	%	%
Flexibility and responsiveness in building a partnership	1	50.0%	4	57.1%	55.6%
Complementary needs and goals	1	50.0%	4	57.1%	55.6%
Intellectual property ownership rights	0	0.0%	1	14.3%	11.1%
Financial and non-financial measures	0	0.0%	4	57.1%	44.4%
Infrastructure to support the partnership	1	50.0%	3	42.9%	44.4%
Shared mindset relating to customer service and continuous improvement	1	50.0%	4	57.1%	55.6%
Organization's leadership	2	100.0%	3	42.9%	55.6%
Commitment to ongoing communication	1	50.0%	3	42.9%	44.4%
Innovation	1	50.0%	5	71.4%	66.7%
Other criteria (please specify)	0	0.0%	1	14.3%	11.1%

Each organization identified the steps taken to form the partnership. The steps identified for each organization are listed in Table 4. When forming the partnership the organizations used the following steps: selecting team members for skills/knowledge, establishing goals & partnership outcomes, securing funding or additional resources, determining processes and support systems, and developing a business or project plan.

Table 4.

Partnership Formation Steps

Partnership Formation Steps	Higher Education Institution (N=6)		Industry Corporation (N=2)		Total (N=8)
	N	%	N	%	%
Select team members for skills/knowledge	5	83.3%	2	100.0%	87.5%
Learn new tools or receive additional training	2	33.3%	0	0.0%	25.0%
Establish goals & partnership outcomes	6	100.0%	2	100.0%	100.0%
Secure funding or additional resources	3	50.0%	2	100.0%	62.5%
Determine processes and support systems	3	50.0%	1	50.0%	50.0%
Develop a business or project plan	4	66.7%	2	100.0%	75.0%
Establish dispute resolution procedures	1	16.7%	0	0.0%	12.5%
Other steps (please specify)	0	0.0%	0	0.0%	0.0%

In forming the partnership, each of the organizations highlighted specific shared benefits that they wished to gain. Table 5 presents the benefits from the higher education institution, while Table 6 presents the benefits from the industry corporation.

Table 5.

Higher Education Institution Perceived Partnership Benefits

Perceived Partnership Benefits	Higher Education Institution (N=6)				
	Very Important	**Important**	**Neutral**	**Unimportant**	**Very Unimportant**
Real life work experience	2	3	0	1	0
Problem solving skills	0	5	0	0	0
Content knowledge	3	2	1	0	0
Access to research facilities/funding	2	1	3	0	0
Access to subject matter experts	4	1	1	0	0
Access to leading edge products/processes/technology	1	4	1	0	0
Source of potential new workers	2	1	1	0	1
Customized training program development	4	2	0	0	0
Increased sales	1	3	2	0	0
Cost savings	1	2	3	0	0
Credibility/reputation of partnering organization	4	1	1	0	0
Practical application of academic theory	0	5	0	1	0
Enhanced credibility	0	4	1	0	0
Advancing existing academic research	0	0	4	0	1

Table 6.

Industry Corporation Perceived Partnership Benefits

Perceived Partnership Benefits	Industry Corporation (N=2)				
	Very Important	**Important**	**Neutral**	**Unimportant**	**Very Unimportant**
Real life work experience	1	0	0	0	0
Problem solving skills	1	0	0	0	0
Content knowledge	2	0	0	0	0
Access to research facilities/funding	0	1	1	0	0
Access to subject matter experts	2	0	0	0	0
Access to leading edge products/processes/technology	1	1	0	0	0
Source of potential new workers	1	0	0	0	0
Customized training program development	2	0	0	0	0
Increased sales	1	1	0	0	0
Cost savings	0	1	0	0	0
Credibility/reputation of partnering organization	1	0	1	0	0
Practical application of academic theory	1	0	0	0	0
Enhanced credibility	1	1	0	0	0
Advancing existing academic research	0	1	0	1	0

The benefits rated as very important or important on the survey instrument by both organizations included:

- Customized training program development
- Content knowledge
- Access to subject matter experts
- Access to leading edge products/processes/technology
- Increased sales
- Credibility/reputation of partnering organization
- Practical application of academic theory
- Enhanced credibility
- Real life work experience
- Problem solving skills

Research participants made two positive comments. An industry participant stated that the partnership between industry and academia was easy to form due to the need for skill enhancements by the companies. A higher education institution participant stated that this was an excellent example of companies and the university working together to help address the need for employees who have necessary skills. A negative comment received from one of the industry partners concerning the formation process was that the respondent's perception was that a four-year university appeared to be ill equipped to provide the responsiveness needed by business. Respondents from the University did not share this perception.

Research Question Two - Partnership Communication

In examining the communication between members of the partnership, the areas examined through the survey data were frequency, depth, methods

used, content exchanged, and feedback mechanisms. When respondents were asked if the communication between partners was adequate, there were mixed responses as shown in Table 7.

Table 7.

Adequate Frequency of Communication – Overall

Adequate Frequency of Communication - Overall	Higher Education Institution (N=7)		Industry Corporation (N=2)		Total (N=8)
	N	%	N	%	%
Strongly agree	1	14.3%	1	50.0%	22.2%
Agree	2	28.6%	1	50.0%	33.3%
Neutral	2	28.6%	0	0.0%	22.2%
Disagree	2	28.6%	0	0.0%	22.2%
Strongly disagree	0	0.0%	0	0.0%	0.0%

Five respondents strongly agreed or agreed that communication was adequate, two respondents were neutral, and two respondents disagreed. Perceptions of communication while *forming* the partnership were also mixed with responses ranging from 1-3 times per week, 1-3 times per month to 4-6 times per month. Respondents stated that communication with industry partners was somewhat less frequent, but continual and appropriate to the situation. They also noted that communications with other University of Akron personnel was inadequate and painful. The lack of timely communication was

also revealed during the interview process as one of the partnership challenges. Formation communication data from the survey is shown in Table 8.

Table 8.

Adequate Frequency of Communication – Partnership Formation

Adequate Frequency of Communication – Partnership Formation	Higher Education Institution (N=5)		Industry Corporation (N=2)		Total (N=7)
	N	%	N	%	%
1-3 times per day	0	0.0%	0	0.0%	0.0%
1-3 times per week	1	20.0%	1	50.0%	28.6%
1-3 times per month	2	40.0%	0	0.0%	28.6%
4-6 times per week	1	20.0%	0	0.0%	14.3%
4-6 times per month	1	20.0%	1	50.0%	28.6%

The perception of communication *during* the partnership was more consistent with respondents choosing 1-3 times per week or 1-3 times per month. However, it was still noted as infrequently. Formation communication data from the survey is shown in Table 9.

Table 9.

Adequate Frequency of Communication – During the Partnership

Adequate Frequency of Communication – During the Partnership	Higher Education Institution (N=5)		Industry Corporation (N=2)		Total (N=7)
	N	%	N	%	%
1-3 times per day	0	0.0%	0	0.0%	0.0%

(table continues)

Adequate Frequency of Communication – During the Partnership	Higher Education Institution (N=5)		Industry Corporation (N=2)		Total (N=7)
1-3 times per week	2	40.0%	1	50.0%	42.9%
1-3 times per month	3	60.0%	1	50.0%	57.1%
4-6 times per week	0	0.0%	0	0.0%	0.0%
4-6 times per month	0	0.0%	0	0.0%	0.0%

Five respondents strongly agreed or agreed that the depth of communication was adequate, and three respondents disagreed, which again shows mixed a mixed response concerning the depth of communication. This data is displayed in Table 10.

Table 10.

Depth of Communication

Depth of Communication	Higher Education Institution (N=7)		Industry Corporation (N=2)		Total (N=7)
	N	%	N	%	%
Strongly agree	1	14.3%	0	0.0%	11.1%
Agree	2	28.6%	2	100.0%	44.4%
Neutral	1	14.3%	0	0.0%	11.1%
Disagree	3	42.9%	0	0.0%	33.3%
Strongly disagree	0	0.0%	0	0.0%	0.0%

Respondents were asked to explain the primary methods used for communication during the partnership. Both partner groups had a similar distribution among the types of communication methods. Table 11 represents usage of all methods with the most frequent being email, followed by telephone,

face-to-face, and meetings. Occasional usage of reports, presentations, or conference calls was also noted as a mode of communication. The artifact analysis supported the survey findings in showing that email communication was the most frequent method utilized.

Table 11.

Communication Methods

Communication Methods	Higher Education Institution (N=7)		Industry Corporation (N=2)		Total (N=7)
	N	%	N	%	%
Face to face	5	71.4%	2	100.0%	77.8%
Telephone	6	85.7%	2	100.0%	88.9%
Email	7	100.0%	2	100.0%	100.0%
Conference calls	2	28.6%	0	0.0%	22.2%
Meetings	3	42.9%	2	100.0%	55.6%
Newsgroups	0	0.0%	0	0.0%	0.0%
Websites	0	0.0%	0	0.0%	0.0%
Presentations	1	14.3%	1	50.0%	22.2%
Reports	0	0.0%	1	50.0%	11.1%
Other Modes (please specify)	0	0.0%	0	0.0%	0.0%

When respondents were asked the content of the information shared between partners, the information shared was primarily centered around the curriculum development process and logistics related to launching the certificate program. All respondents concurred that the appropriate level of confidentiality

was maintained throughout the partnership. A noteworthy comment related to partnership communication was that "timely communications is critical for success."

Research Question Three - Partnership Benefits

The benefits to the partnering organizations were determined following an analysis of five categories of findings: shared partnership expectations and goals, organization specific goals, overall partnership benefits, industry corporation specific benefits, and higher education institution specific benefits. Numerous survey items provided respondents with the opportunities to provide feedback on these five categories. Respondents described a successful partnership as one where the needs would be met on both sides, the partnership was mutually beneficial, resources would be shared, and where each partner contributed and derived benefit from the collaboration. The two themes that emerged as a shared goal of this partnership was to industry desired support for workforce training to improve the skill level of their employees and increase productivity, while a secondary goal was identified as creating a repeatable plastics curriculum for future employees and a partnership model that could be used again within other industries.

Each organization was asked to rate multiple benefits that they felt could be gained through a partnership relationship on a five-point scale. The highest-ranking expected benefits for the higher education institution were customized

training program development, access to subject matter experts, credibility/reputation of partnering organization, content knowledge, real life work experience, access to leading edge products/processes/technology, practical application of academic theory, and problem solving skills. An additional perceived benefit that was provided through the survey was providing skilled employees to improve all aspects of participating companies. The complete results for the higher education institution are shown in Table 12.

Table 12.

Expected Partnership Benefits – Higher Education Institution

Expected Partnership Benefits – Higher Education Institution N = 6	Very Important	Important	Neutral	Unimportant	Very Unimportant	Response Count
Customized training program development	4	2	0	0	0	6
Access to subject matter experts	4	1	1	0	0	6
Credibility/reputation of partnering organization	4	1	1	0	0	6
Content knowledge	3	2	1	0	0	6
Real life work experience	2	3	0	1	0	6
Access to leading edge products/processes/technology	1	4	1	0	0	6
Practical application of academic theory	0	5	0	1	0	6
Problem solving skills	0	5	0	0	0	5
Increased sales	1	3	2	0	0	6
Cost savings	1	2	3	0	0	6

(table continues)

Expected Partnership Benefits – Higher Education Institution N = 6	Very Important	Important	Neutral	Unimportant	Very Unimportant	Response Count
Access to research facilities/funding	2	1	3	0	0	6
Source of potential new workers	2	1	1	0	1	5
Enhanced credibility	0	4	1	0	0	5
Advancing existing academic research	0	0	4	0	1	5
Other Desired Benefits (please specify)	0	0	0	0	0	1

The highest-ranking expected benefits for the industry corporation were content knowledge, access to subject matter experts, customized training program development, access to leading edge products/processes/technology, increased sales, and enhanced credibility. The results are shown in Table 13 for the industry corporation.

Table 13.

Expected Partnership Benefits – Industry Corporation

Expected Partnership Benefits – Industry Corporation N = 2	Very Important	Important	Neutral	Unimportant	Very Unimportant	Response Count
Content knowledge	2	0	0	0	0	2
Access to subject matter experts	2	0	0	0	0	2
Customized training program development	2	0	0	0	0	2

(table continues)

Expected Partnership Benefits – Industry Corporation N = 2	Very Important	Important	Neutral	Unimportant	Very Unimportant	Response Count
Access to leading edge products/processes/technology	1	1	0	0	0	2
Increased sales	1	1	0	0	0	2
Enhanced credibility	1	1	0	0	0	2
Credibility/reputation of partnering organization	1	0	1	0	0	2
Real life work experience	1	0	0	0	0	1
Problem solving skills	1	0	0	0	0	1
Source of potential new workers	1	0	0	0	0	1
Practical application of academic theory	1	0	0	0	0	1
Access to research facilities/funding	0	1	1	0	0	2
Advancing existing academic research	0	1	0	1	0	2
Cost savings	0	1	0	0	0	1
Other Desired Benefits (please specify)						0

Beyond the perceived benefits to both organizations, specific questions related to the benefits that were received from the partnership were asked in an open-ended format on the survey. Each organization was also asked to rate the benefits that were actually gained by their organization by using the same scale and attributes for the perceived benefits. For the higher education institution, the highest rated actual benefits were customized training program development, content knowledge, and cost savings. Table 14 shows a list of benefits realized by the higher education institution.

Table 14.

Realized Partnership Benefits – Higher Education Institution

Realized Partnership Benefits - Higher Education Institution N = 7	Very Important	Important	Neutral	Unimportant	Very Unimportant	Response Count
Customized training program development	5	2	0	0	0	7
Content knowledge	1	4	1	0	0	6
Cost savings	1	4	0	1	0	6
Increased sales	2	2	2	1	0	7
Problem solving skills	1	2	4	0	0	7
Access to subject matter experts	3	0	3	0	0	6
Access to leading edge products/processes/technology	2	0	3	1	0	6
Source of potential new workers	1	2	2	0	1	6
Access to research facilities/funding	1	1	3	1	0	6
Real life work experience	2	2	1	0	0	5
Other Benefits Gained (please specify)						0

The realized benefits identified in the open-ended responses by the higher education institution included:

- increased competitiveness as the only university offering this certificate program,
- increase in knowledge concerning developing custom training and development programs,
- improved faculty skills and knowledge as it related to distance learning technology,
- additional requests for training were received,
- enrolling non-credit students that would not have otherwise participated in higher education.

The highest rated actual benefits by the industry corporation were problem solving skills, content knowledge, access to subject matter experts, customized training program development, real life work experience, access to leading edge products/processes/technology, and increased sales. Table 15 shows a list of benefits realized by the industry corporation. The highest rated benefits were problem solving skills, content knowledge, access to subject matter experts, and customized training program development. Three other highly rated benefits were real life work experience, access to leading edge products/processes/technology, and increased sales.

Table 15.

Realized Partnership Benefits – Industry Corporation

Realized Partnership Benefits – Industry Corporation N = 2	Very Important	Important	Neutral	Unimportant	Very Unimportant	Response Count
Problem solving skills	2	0	0	0	0	2
Content knowledge	2	0	0	0	0	2
Access to subject matter experts	2	0	0	0	0	2
Customized training program development	2	0	0	0	0	2
Real life work experience	1	1	0	0	0	2

(table continues)

Realized Partnership Benefits – Industry Corporation N = 2	Very Important	Important	Neutral	Unimportant	Very Unimportant	Response Count
Access to leading edge products/processes/technology	1	1	0	0	0	2
Increased sales	1	1	0	0	0	2
Source of potential new workers	1	0	0	0	1	2
Access to research facilities/funding	0	0	2	0	0	2

The realized benefits identified in the open-ended responses were increased skills and knowledge of employees, an estimated 5% increase in future sales, a cost savings on employee tuition, and an expectation for increased enrollment in the program in the future.

Research Question Four - Partnership Challenges

Each organization was asked to rate any challenges that they felt arose during the partnership relationship on a five-point scale. The highest-ranking challenges for the higher education institution were timeliness of project work completion, timeliness of communication, and resource availability. An additional challenge that was identified through the survey was that most of the challenges were internal to various higher education institution departments and external curriculum instructors. The complete results for the higher education institution are shown in Table 16.

Table 16.

Partnership Challenges – Higher Education Institution

Partnership Challenges - Higher Education Institution N = 7	Very Frequently	Frequently	Sometimes	Occurred once	Didn't occur	n/a	Response Count
Timeliness of project work completion	2	1	1	0	1	1	6
Timeliness of communication	1	1	0	0	2	1	5
Resource availability	0	2	1	0	1	1	5
Lack of understanding of how the other partner operates	0	1	1	1	2	1	6
Differing partnership goals	0	0	4	0	1	1	6
Conflict of interest	0	0	2	0	2	1	5
Interpersonal conflicts	0	0	2	1	2	1	6
Difficulty managing the collaboration	0	0	2	1	2	1	6
Quality of deliverables	0	0	2	0	2	1	5
Negative impact on the mission, finances or reputation of each organization	0	0	1	0	3	1	5
Lack of clarity of mutually agreed upon goals	0	0	1	1	2	1	5
Cultural differences	0	0	0	0	3	2	5
Loss of control of proprietary information	0	0	0	0	5	1	6
Other Challenges (please specify)							1

When asked to provide additional details for the challenges experienced in the open-ended responses, the higher education institution acknowledged the following:

- responsiveness to employer needs

- making sure that curriculum was at the appropriate level desired by industry and that students were at that same level,
- took some time to decide to offer credit versus non-credit classes,
- the process took too long,
- departmental turf and ownership issues were present,
- numerous difficulties finding last minute instructors for curriculum that was not developed/delivered in a timely manner by another academic unit.

During the interview sessions, the challenges that presented the greatest issues were identified as creating a partnership was a new process, internal conflicts between departments within the higher education institution, and delays in partnership formation activities caused momentum to be lost in developing the curriculum.

The highest-ranking challenges for the industry corporation were timeliness of project work completion, lack of clarity of mutually agreed upon goals, and differing partnership goals. The complete results for the industry corporation are shown in Table 17. During the interview sessions, the challenges that presented the greatest issues were identified as the timeliness of completing the polymer certification program, accountability of partnership members, and buy-in from some members of the higher education institution concerning the value of the partnership.

Table 17.

Partnership Challenges – Industry Corporation

Partnership Challenges – Industry Corporation N = 2	Very Frequently	Frequently	Sometimes	Occurred once	Didn't occur	n/a	Response Count
Timeliness of project work completion	0	1	0	0	0	0	1
Lack of clarity of mutually agreed upon goals	0	1	0	0	1	0	2
Differing partnership goals	0	0	2	0	0	0	2
Lack of understanding of how the other partner operates	0	0	1	0	1	0	2
Timeliness of communication	0	0	1	0	1	0	2
Cultural differences	0	0	0	0	2	0	2
Conflict of interest	0	0	0	0	2	0	2
Resource availability	0	0	0	0	2	0	2
Interpersonal conflicts	0	0	0	0	2	0	2
Difficulty managing the collaboration	0	0	0	0	2	0	2
Loss of control of proprietary information	0	0	0	0	2	0	2
Negative impact on the mission, finances or reputation of each organization	0	0	0	0	2	0	2
Quality of deliverables	0	0	0	0	1	0	1
Other Challenges (please specify)							0

The overarching theme around challenges centered on improved communication and better initial understanding of each partner's goals. Three respondents noted that communication with some team members was lacking, that some activities took a long time to complete due to lack of communication, and some key decisions were delayed.

When asked to provide details for how challenges were resolved in the open-ended responses, higher education institution respondents stated that adjustments were made as the partnership progressed, and that the challenges were worked out eventually but it took a long time. Industry corporation respondents reported that steady communication was required between the two partners that lots of meetings and multiple conversations helped resolve the challenges.

From the follow-up interviews that included both higher education institution and industry corporation interviewees, a theme that emerged for proposed resolutions centered on increasing communication with team members and having steady dialogue so that adjustments could be made incrementally. It was also suggested that there be one person from each partnering organization who was committed to the project on an on-going basis. It is expected that some people may be involved with the project and then be reassigned to other projects, but the inconsistency with who was accountable caused delays during the design

and implementation phases. Providing one central contact would have offered additional stability and could have decreased miscommunications that occurred.

An additional theme on correcting the challenges experienced was on establishing better initial agreements and signed deliverables between the internal partners. It was stated by one respondent that, "There was no direct oversight of the products as they were being developed and we went to market too early with an incomplete product." It was also noted that this was the first collaborative project attempted by the University of Akron Medina County University Center, and that the knowledge gained through developing this certificate program will prove invaluable as future partnership projects are executed.

Summary of Findings

The study of an existing partnership between a higher education institution and a selected corporation provided important findings about outcomes, activities, communication strategies, benefits and challenges.

Partnership outcome. The partnership between the University of Akron Medina County University Center and Plastipak Packaging resulted in a 128-hour polymer certification program. The polymer certification program was delivered via a blend of Web-based instruction, classroom sessions, and laboratory experiences. The polymer certification was offered using a cohort

schedule and the first program was initially delivered to twelve incumbent workers.

Partnership activities. Medina County had multiple polymer related companies who were interested in improving their employees' skills. The highest percentage of responses for forming a partnership from both partners was improving employee skills, retraining employees, knowledge exchange, and improving product quality. Partnership criteria centered on the ability to be innovative, flexibility and responsiveness, common needs and goals, a shared mindset relating to customer service and continuous improvement, and organizational leadership.

Partnership communication. Respondents reported mixed responses when asked if the communication between partners was adequate. The types of information shared between partners was predominately centered on the curriculum development process and logistics related to launching the certificate program. The primary means of communication was email, followed by telephone, face-to-face, and meetings. All respondents concurred that the appropriate level of confidentiality was maintained.

Partnership benefits. Benefits were realized by both partnering organizations. The highest-ranking expected benefits for the higher education institution were customized training program development, access to subject matter experts, credibility/reputation of partnering organization, content

knowledge, real life work experience, access to leading edge products/processes/technology, practical application of academic theory, and problem solving skills. The highest-ranking expected benefits for the industry corporation were content knowledge, access to subject matter experts, customized training program development, access to leading edge products/processes/technology, increased sales, and enhanced credibility. For the higher education institution, the highest rated actual benefits were customized training program development, content knowledge, and cost savings. The highest rated actual benefits by the industry corporation were problem solving skills, content knowledge, access to subject matter experts, customized training program development, real life work experience, access to leading edge products/processes/technology, and increased sales.

Partnership challenges. The highest-ranking challenges for the industry corporation were timeliness of project work completion, lack of clarity of mutually agreed upon goals, and differing partnership goals. The highest-ranking challenges for the higher education institution were timeliness of project work completion, timeliness of communication, and resource availability.

Higher education institution respondents stated that adjustments were made as the partnership progressed and that the challenges were worked out eventually but it took a long time. Industry corporation respondents reported

that steady communication was required between the two partners and that lots of meetings and multiple conversations helped resolve the challenges.

Chapter 5 – Conclusions and Recommendations

In order to remain competitive in the world market, corporations must have highly skilled employees who can keep the enterprise economically viable in a global economy. Partnerships between higher education and industry corporations can be a useful strategy in providing workforce training and maintaining knowledgeable employees. This type of partnership encourages "home-grown" talent and educating the workers within the local community that an industries need. The purpose of this evaluative case study research was to study an existing industry – higher education institution partnership.

The literature reviewed for this study included workforce development, collaborative partnerships, and industry – higher education partnerships. The workforce development analysis included government provided programs, the changing workforce, and workforce development expenditures. A review of the different types of collaborative partnerships were also examined including federal, state, and local government; private businesses; and community organizations. Then a review of current industry – higher education partnerships was reviewed that included their purpose, formation structure, and organizational benefits and challenges.

Government support of workforce development programs have a long history in the United States in preparing employees for the skills they need. The first federal government program that focused on providing jobs for American

workers began in 1935 and federal programs are still in existence in 2008. As the United States continues to move to an information economy, the demand for skilled workers will continue to rise. Providing training and development opportunities to retain the most talented employees will be key to a businesses' continued success. In 2002, between $3.2 billion and $5.3 billion were spent on job training by the federal government, and state governments spent another $500 million to $700 million a year on training. Businesses spend considerably more on training than do the federal and state governments combined--between $46 billion and $54 billion a year in total training-related spending (Mikelson & Nightingale, 2004). Industry spending on employee learning and development increased to $109.25 billion as estimated by the American Society for Training and Development (Rivera & Paradise, 2006) with nearly three quarters ($79.75 billion) spent on internal learning activities, and the remainder ($29.50 billion) spent on external services.

Workforce development partnerships are one method to meet the employee skills shortage and these collaborative partnerships can be found in government, private business, and community organizations. The Workforce Investment Act provides government funds to improve worker skills. Private sector businesses invest in developing worker's skills so they can remain competitive in the marketplace and are a benefit to the company as well as the employee. Community partnerships can take a variety of forms and involve a

wide range of organizations. Several examples of each of these partnerships was provided in the review of literature.

Industry – higher education partnerships have been used by multiple types of organizations to address the learning needs of its employees. Some of the most common industry – academic partnership relationships are research, consulting, patenting or licensing, equity, strategic alliances, and training (Blumenthal, 1994; Orr, 2001). Benefits to both types of organizations can include expanding their reach within the community or industry, providing opportunities for access, identifying new opportunities for generating income, and establishing a way to maintain the organization's independence in the marketplace (Peter, 2003).

Some challenges to a university participating in a partnership can be university officials' lack of understanding of how companies operate, differing time horizons of the two organizations, the difficulties in negotiating and maintaining a collaborative effort, and a possible negative impact on the mission, finances, or reputation of the university ("Working together," 2001). Challenges to an industry corporation can be integrating university research into the product development process, loss of control of proprietary information, and the lack of skilled people and processes to manage a collaborative partnership ("Working together," 2001). Multiple examples of prior workforce development partnerships are discussed throughout the literature.

Methods

An evaluative case study approach was chosen for this study because it allowed the researcher to describe the partnership outcomes, communications, formation, benefits, and challenges in sufficient detail to reach conclusions. Two primary sources of data were examined for this case study, and these sources were the partnership stakeholder perceptions and artifacts from the partnership.

The population involved in this case study were the staff members of the higher education institution and the selected industry corporation. The higher education institution involved in this research study was the University of Akron Medina County University Center. There were multiple industry corporations involved in the partnership, but the corporation who agreed to participate in the research study was Plastipak Packaging. Plastipak Packaging is an international plastics manufacturer who produces plastic rigid containers. Thirteen individuals were identified as having significant involvement in partnership activities. Nine of the thirteen members agreed to participate in the study resulting in a sixty-nine percent participation rate.

The outcome of the partnership under study was the Polymer Certification Program. This program was developed jointly by the higher education institution and local plastics manufacturers to improve plastics manufacturing employee skills. Data was collected through artifact analysis, a stakeholder survey, and follow-up interviews. Instruments used to collect

stakeholder data included a data capture worksheet, an electronic survey tool, and interview questions.

Major Findings

Medina County had multiple polymer related companies who were interested in improving their employees' skills. The highest percentage of responses for forming a partnership from both partners was improving employee skills, retraining employees, knowledge exchange, and improving product quality. Partnership criteria centered on the ability to be innovative, flexibility and responsiveness, common needs and goals, a shared mindset relating to customer service and continuous improvement, and organizational leadership.

The partnership between the University of Akron Medina County University Center and Plastipak Packaging resulted in a 128-hour polymer certification program. The polymer certification program was delivered via a blend of Web-based instruction, classroom sessions, and laboratory experiences. The polymer certification was offered using a cohort schedule and the first program was initially delivered to twelve incumbent workers.

Communication and means for sharing information were reported. Respondents reported mixed responses when asked if the communication between partners was adequate. The types of information shared between partners was predominately centered on the curriculum development process

and logistics related to launching the certificate program. The primary means of communication was email, followed by telephone, face-to-face, and meetings. All respondents concurred that the appropriate level of confidentiality was maintained.

The highest-ranking expected benefits for the higher education institution were customized training program development, access to subject matter experts, credibility/reputation of partnering organization, content knowledge, real life work experience, access to leading edge products/processes/technology, practical application of academic theory, and problem solving skills. The highest-ranking expected benefits for the industry corporation were content knowledge, access to subject matter experts, customized training program development, access to leading edge products/processes/technology, increased sales, and enhanced credibility.

Actual benefits were realized by both partnering organizations. For the higher education institution, the highest rated actual benefits were customized training program development, content knowledge, and cost savings. The highest rated actual benefits by the industry corporation were problem solving skills, content knowledge, access to subject matter experts, customized training program development, real life work experience, access to leading edge products/processes/technology, and increased sales.

Challenges existed for both organizations. The highest-ranking challenges for the higher education institution were timeliness of project work completion, timeliness of communication, and resource availability. The highest-ranking challenges for the industry corporation were timeliness of project work completion, lack of clarity of mutually agreed upon goals, and differing partnership goals. Higher education institution respondents stated that adjustments were made as the partnership progressed and that the challenges were worked out eventually but it took a long time. Industry corporation respondents reported that steady communication was required between the two partners and that lots of meetings and multiple conversations helped resolve the challenges.

Conclusions – Implications / Recommendations

There are four conclusions derived from the findings of the study.

1. The partnership formation process was straightforward based on the training needs of the industry and the expertise retained by the higher education institution.

The partnership was formed based on the need of multiple polymer companies to provide job skills training to their employees. They were experiencing problems finding qualified entry-level workers and up-skilling existing plastics manufacturing employees. The University of Akron possessed faculty expertise as well as research facilities devoted to the polymer industry.

This industry – higher education partnership allowed each organization to retain its own core competencies, governing structure, and mission, while expanding the knowledge and capabilities of each organization.

When both organizations are expected to benefit, then forming an industry – higher education institution partnership is a logical and beneficial resolution. By examining the existing business drivers, the reasons for partnership formation, the steps involved in creating the partnership and the proposed benefits, the first research question was effectively explored to the satisfaction of the researcher for this study. This should also allow future researchers to examine the steps involved in partnership formation and replicate them for a successful partnership outcome.

2. As higher education and corporations operate in two very different environments with different cultures, the problems of communication and loss of focus towards goals are not unusual and most likely to be expected.

Communication could be defined as the exchange and flow of information and ideas from one person to another. Effective communication can only occur if the receiver understands the information that the sender intended to transmit. Mehrabian is a well known researcher in the areas of verbal and non-verbal messages, and his work has come to be known as the 7%-38%-55% Rule (Mehrabian, 1981). This rule denotes that during communication that words

account for 7%, tone of voice accounts for 38%, and body language accounts for 55%. Email was the primary method of communication in this partnership. This method of communication completely excludes tone of voice and body language, the two highest rated components. The next most prominent communication method was telephone, which would add the tone of voice to the communication process. Face-to-face communication was the third most used method of communication which could have utilized all three components of the rule.

By reviewing the methods of communication used in the partnership and the importance of verbal and non-verbal messaging, it would have been beneficial if at least on a monthly or bi-monthly basis, that partnership participants could have met face-to-face to conduct partnership activities. Although this may have presented other challenges; travel time, meeting facility availability, or the opportunity cost of time away from their employer; the researcher believes that the advantages gained in improved communication between partnership participants would have outweighed any potential disadvantages.

This was the first partnership activity attempted by the higher education institution and the partnering industry corporation. The first attempt at most endeavors experience a learning curve, and delays had a negative impact on the partnership. There were several discussions initially as to whether the polymer certification program was going to be a credit or non-credit program. Then there

were discussions about what content should be included in the certification program. Then there was discussion and debate on the delivery methods to be used in the certification program: online, face-to-face, etc. Each of these discussions took time. As more time passed, and without a defined project manager, these delays caused a loss of momentum. As delays occurred, this also meant that the same individuals could not commit their time and resources to the certification program development, so different members of both organizations were assigned to the partnership. This caused additional delays because the new members of the partnership team had to be brought up to speed on past activities and future plans. This led to one of the main challenges of the partnership, which was timeliness of project completion. A recommendation for resolving this challenge would be assigning a project manager to the partnership, which is a well established project management method (Wideman, 1999).

3. Partnerships are difficult and a project manager is needed.

When two unique organizations collaborate, there are bound to be a few challenges during the process and this partnership was no different (Blumenthal, 1994; Elmuti et al., 2005; Johnstone, 1994; "Working together," 2001). One of the main challenges identified was timeliness of project completion. A recommendation for resolving this challenge would be to assign a project manager to the partnership. The project manager would be responsible for creating and updating a project plan that would include specific deliverables and

due dates. This individual would also be responsible for communicating any changes to the project plan to all partnership participants. This recommendation aligns with widely used project management principles (Wideman, 1999). These two types of organization complete work at a different pace. Higher education institutions typically complete work on a semester schedule and businesses generally schedule projects around quarters throughout a calendar year. A project manager could help manage this and other cultural differences between the organizations. It would also be beneficial to have a lead representative from both the industry corporation and the higher education institution who could coordinate the activities of each partner, and be a main point of contact for the project manager.

When the respondents were asked whether they would participate in a partnership again, five responded affirmatively and two were undecided. The explanations provided for the responses provided included statements such as: "There have not yet been established clear goals or collaborative expectations regarding increased student populations, revenues, research methodologies, or technological improvements. When there are clear goals with measurable results, a determination can be made."; "This is our business, we would definitely participate."; "Worked well"; and "There would have to be profound benefits derived to overcome the well established lack of responsiveness demonstrated by the U of A. *[University of Akron]*". Even though the majority of respondents

indicated they would be willing to participate in a partnership again, the comments indicate that discussions should take place on how partnership activities should be conducted. Before beginning any additional partnership activities, it is recommended that both partners are in agreement on the specific goals of the partnership, the delivery time frame of the partnership activities, and how partnership outcomes will be measured to determine success. These recommendations align with previous partnerships reviewed in the literature (Bird, 2006; Leach, 2001; Nolan, 2007).

4. An evaluation of the partnership process itself must be incorporated into the process.

Measuring return on investment is a common measure in almost every organization, whether one is measuring sales, technology, finances, stock price, facilities, human capital, etc. (*Return on investment - ROI*, 2008). The output of the organization is measured to determine if the activities pursued benefited the organization. A partnership is no different and should be held accountable for its activities and results. Based on the length of the partnership, it is recommended that monthly or quarterly feedback sessions be conducted between partners to assess the satisfaction of the partners with the progress and results of the partnership (Elmuti et al., 2005). There were no feedback mechanisms in place to evaluate the partnership under study; however, evaluations were implemented for each of the courses developed in the polymer

certification program. In the partnership under review, monthly feedback sessions could have eliminated some of the frustrations surrounding timeliness of project completion and resource availability. There should also have been a "lessons learned" session at the end of the polymer certification curriculum development cycle to determine if the goals of the partnership had been reached (Cobb et al., 1998; Meister, 1998). Additionally, a capstone review session should have been conducted at the completion of the first cohort of certification program graduates. This capstone review session would have served two purposes: to assess and integrate feedback results from individual classes into future certification program offerings and to gauge both partners satisfaction with the final outcome of the partnership. By conducting formative and summative evaluations, some of the challenges that were experienced throughout the partnership may have been eliminated (Cobb et al., 1998; Elmuti et al., 2005; Meister, 1998; Orr, 2001).

Limitations of the Study

Case study research in of itself poses a limitation to how learnings and conclusions can be extended to other circumstances. However, as educational institutions do share some common values and often common goals, other higher education organizations are most likely more similar to the University of Akron Medina County University Center than different regarding efforts for meeting the needs of the communities they serve. In addition, while Plastipak Packaging

certainly has unique qualities, they would have similar training needs, capabilities, and resources as other plastics manufacturing companies within their industry. A case study does generally provide transferability. Transferability is the ability of research results to transfer to situations with similar parameters, populations and characteristics (Lincoln & Guba, 1986). The lessons learned from this study do have relevance to other institutions because the formation reasons, the communication methods, and the benefits and challenges experienced could occur in most any industry - higher education institution partnership.

Limitations. Although a case is chosen because it is illustrative of a larger issue, a case by definition is still a limited sample and offers only theoretical generalization (Stake, 1995). This limitation to case study research could be eliminated by using a multi-case study review of an industry - higher education institution partnership. Some methodological limitations were a result of limited access to all artifacts of the partnership process as well as the limited number and length of interviews that were performed. It is possible that further collection of data and more in-depth analysis could have revealed further findings with subsequent conclusions. A further limitation is that the results of the study are subject to the interpretations of the researcher.

Recommendations for Further Research

As evidenced through this case study research and the existing literature regarding workforce development partnerships, the data supports that industry - higher education institution partnerships will continue to prove beneficial in the future. As businesses seek ways to save costs on employee development and remain competitive in a global environment, and as higher education institutions increasingly look for ways to generate additional revenue outside of the traditional student model and be viewed as an important contributor to the local economy by providing skilled workers, partnerships are a viable option to improve employee skills.

Additional research into this subject matter should focus on how corporations can become more familiar with higher education institution programs and the faculty expertise that exists within them. In the case of this research study, the local businesses were not aware of the knowledge and expertise available to them, and without the involvement of a third party, they may have overlooked the local university as a resource. To sustain economic prosperity in a challenging economy, it is critical for workforce developers to help bridge the relationships between local higher education institutions and corporations.

Research that examines how higher education institutions can become more flexible and react to the changing learning needs of the workforce in a timely manner is also a relevant topic. Additionally, conducting research that

seeks input from the students and graduates of the partnership would add additional insight regarding the partnership. Finally, conducting research into establishing a partnership development model that provides a standardized approach to creating and sustaining industry - higher education institution partnerships would be beneficial in the future. This type of model would highlight the advantages and expand the benefits to both types of organizations, and would reduce the challenges experienced by both organizations.

Closing Comments

This study has expanded the knowledge base of partnership formation, communication, benefits, and challenges by providing insight into an industry - higher education institution partnership beyond the information collected in previous studies (Garza, 2006; Leach, 2001; Roach, 2005; Vanneman, 1992). It has provided valuable information that can be used in the formation of future workforce development partnerships by providing additional understanding and applicability for these types of partnerships. This study has shown that clear and timely communication is an essential ingredient for a successful industry - higher education institution partnership, as is true with most relationships in which we engage. As Friedman (2005) stated America's labor force must be constantly adapting to higher-value-added jobs in order to remain viable in the global marketplace. This study showed how employee skills were improved in order to allow the corporations to remain competitive in the global economy. It

has also shown the benefits of these types of partnerships to both organizations. By following the recommendations provided, challenges that existed in this partnership can be eliminated in future partnerships.

On a personal level, this study has shown the researcher that there is an ongoing need for individuals who are skilled and knowledgeable in industry activities, and well versed in higher education practices, to help bridge the gap between these two types of organizations. It is the researcher's desire to be a catalyst in connecting additional industry corporations and higher education institutions in future partnerships to facilitate employee skills training to the workforce.

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Appendices

APPENDIX A: Partnership Organization Participation Email

Mr./Ms. (Partnership Member Name),

My name is Michelle Walker and I am a doctoral student at Pepperdine University. I live in Medina and work at Westfield Insurance as an Instructional Designer. I have been involved with the Medina County University Center project for the past 2 years as part of the Business curriculum committee working with Holly Harris-Bane who kindly gave me your contact information.

My purpose in writing you is to inquire as to your interest in helping me explore the formation of workforce development partnerships between higher education and industry to train employees which is the focus of my dissertation research. I would very much be interested in exploring the partnership that was formed between the University of Akron Medina County University Center and the Costigan Polymer Group.

Would you be interested in discussing your possible participation? The process would primarily involve completing a simple survey with some follow-up interview questions. This would occur sometime in the first quarter of 2008.

Thank you for your time and I appreciate your consideration.

Michelle Walker
EdD Doctoral Student
Pepperdine University

APPENDIX B: Data Capture Worksheet

Data Capture Worksheet

Document Name	
Date Reviewed	
Document Summary	

Theme	**Code**	**Description**
Partnership Formation	FORM	Describes the formation of the industry – higher education partnership
Partnership Communication	COM	Describes the communication between the industry – higher education organization
Partnership Activity	ACT	Describes the activities conducted between the industry – higher education organization
Partnership Benefit – Higher Education	PBH	Describes the benefits for the higher education organization
Partnership Benefit – Industry	PBI	Describes the benefits for the industry organization
Partnership Challenge – Higher Education	PCH	Describes the challenges for the higher education organization
Partnership Challenge – Industry	PCI	Describes the challenges for the industry organization

Code	**Notes**

APPENDIX C: Survey Instrument

Survey Instrument

Industry – Higher Education Partnership Survey

Introduction

DESCRIPTION The following survey contains questions concerning the Polymer Certification Program partnership between your industry corporation and the University of Akron-Medina County University Center.

PURPOSE The purpose of this survey is to learn how the Polymer Certification Program was formed, how the partners have communicated and shared information, what benefits were gained from the partnership, and any conflicts that developed. This survey will assist in providing information to be used by the researcher in the completion of the dissertation process, as well as providing information that may be used by the researcher or dissertation advisor in research publications.

TIME This survey should take less than 30 minutes to complete.

CONFIDENTIALITY Your responses to this survey will be handled in a confidential manner.

CONTACT Thank you for your time and if you have any questions, please don't hesitate to contact me.

Michelle Walker
EdD Doctoral Candidate
Pepperdine University

Phone: XXX-XXX-XXXX
Email: XXX@pepperdine.edu

Organization - Participant Details

* **1. Please provide the following information:**

Name:

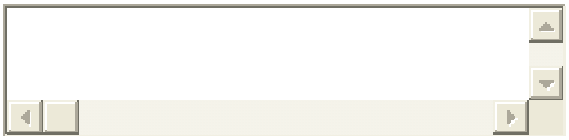
Company:

Email Address:

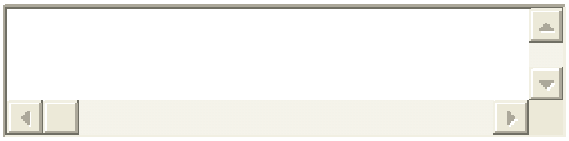
Phone Number:

Partnership Description

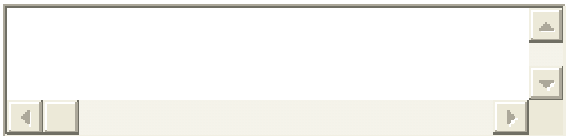
2. Describe your role in the partnership.



3. Describe the type of activities/outcomes/etc. that resulted from this partnership.



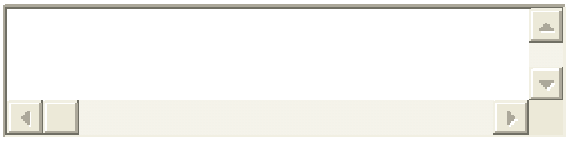
4. What financial or other contractual arrangements were formed with this partnership?



5. How was this partnership funded?

- ☐ Federal
- ☐ State
- ☐ Local
- ☐ Grant
- ☐ Donations
- ☐ Private
- ☐ Other (please specify)

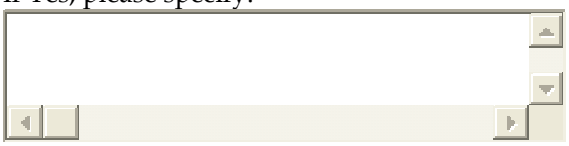
6. What costs were involved in establishing the partnership?



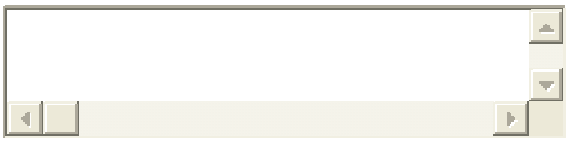
7. Are there any ongoing expenses?

- ☐ Yes
- ☐ No

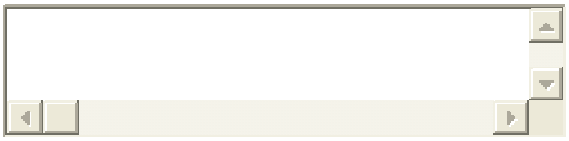
If Yes, please specify.



8. Describe the type of activities that resulted from this partnership.



9. In making the decision to form a partnership, what business needs (or opportunities) existed that you were unable to meet with your internal resources?



10. Describe the activities that led to forming this partnership.

11. Why did your organization decide to form a partnership? Check all that apply

- ☐ Why did your organization decide to form a partnership? Check all that apply Research opportunity
- ☐ Knowledge exchange
- ☐ Workshop/seminar
- ☐ Technology improvement
- ☐ Employee skill assessment
- ☐ Career counseling
- ☐ Other business drivers (please specify)

- ☐ Retraining employees
- ☐ New patents/licenses
- ☐ Improving product quality
- ☐ Gaining access to new research
- ☐ Finding future employees
- ☐ Improving employee skills

12. What criteria did you use when seeking a partner? Check all that apply.

- ☐ Flexibility and responsiveness in building a partnership
- ☐ Complementary needs and goals
- ☐ Intellectual property ownership rights
- ☐ Shared mindset relating to customer service and continuous improvement
- ☐ Organization's leadership
- ☐ Commitment to ongoing

- ☐ Financial and non-financial measures
- ☐ Infrastructure to support the partnership
- ☐ Other criteria (please specify) _____
- ☐ communication
- ☐ Innovation

13. What steps did you take to form your partnership? Check all that apply.

- ☐ Select team members for skills/knowledge
- ☐ Learn new tools or receive additional training
- ☐ Establish goals & partnership outcomes
- ☐ Secure funding or additional resources
- ☐ Other steps (please specify) _____
- ☐ Determine processes and support systems
- ☐ Develop a business or project plan
- ☐ Establish dispute resolution procedures

14. Which of the following benefits was important to your organization in forming a partnership?

	Very Important	Important	Neutral	Unimportant	Very Unimportant
Real life work experience					
Problem solving skills					
Content knowledge					
Access to research facilities/funding					
Access to subject matter experts					
Access to leading edge products/processes/technology					
Source of potential new workers					
Customized training program development					
Increased sales					
Cost savings					
Credibility/reputation of partnering organization					
Practical application of academic theory					
Enhanced credibility					
Advancing existing academic research					

Other Desired Benefits (please specify)

15. What other information can you provide concerning the partnership formation process?

Partnership Communication

16. The frequency of communication between partners was adequate.

Strongly agree

- Agree
- Neutral
- Disagree
- Strongly disagree

17. How frequently did communication take place during the formation of the partnership?

- 1-3 times per day
- 1-3 times per week
- 1-3 times per month
- 4-6 times per week
- 4-6 times per month

Other frequency (please specify)

18. How frequently did communication take place during the partnership?

- 1-3 times per day
- 1-3 times per week
- 1-3 times per month
- 4-6 times per week
- 4-6 times per month

Other frequency (please specify)

19. What methods of communication were used? Check all that apply.

- Face to face
- Telephone
- Email
- Conference calls
- Meetings
- Other Modes (please specify)
- Newsgroups
- Websites
- Presentations
- Reports

20. The depth of communication between partners was adequate.

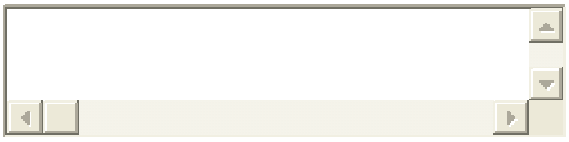
- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

21. What types of information was shared between partners?

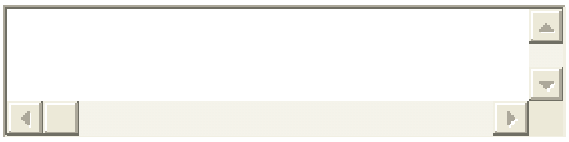
22. Was the appropriate level of confidentiality maintained?

- ☐ Strongly agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly disagree

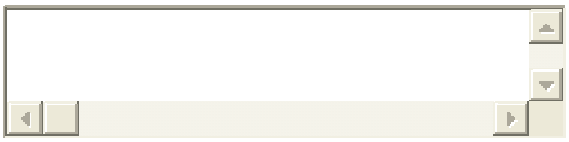
23. Do you have an evaluation of this partnership in place or another mechanism for providing feedback to your partnering organization?



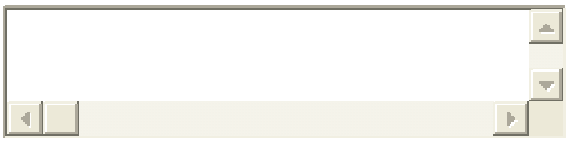
24. What other information can you provide concerning partnership communications?



25. How would you describe a successful collaboration (partnership)?



26. What were the shared goals of this partnership?



27. What was the main goal of this partnership for your organization?

28. Which of the following benefits do you feel were gained by your organization through your partnership relationship?

	Very Important	Important	Neutral	Unimportant	Very Unimportant
Real life work experience					
Problem solving skills					
Content knowledge					
Access to research facilities/funding					
Access to subject matter experts					
Access to leading edge products/processes/technology					
Source of potential new workers					
Customized training program development					
Increased sales					
Cost savings					

Other Benefits Gained (please specify)

29. What other information can you provide concerning partnership benefits?

* **30. Please select your partnership institution**

- ☐ University of Akron-Medina County University Center
- ☐ Industry Corporation

University of Akron-Medina County University Center Benefits

41. Did this partnership result in any increase in the amount of research you were able to complete?

- ☐ Yes
- ☐ No

If Yes, please specify.

42. Were there any patents or publications from this partnership project?

☐ Yes

☐ No

If Yes, please specify.

43. Was there any new equipment purchased during this partnership project?

☐ Yes

☐ No

If yes, describe any benefits outside the partnership from having it?

44. Were there any improvements to faculty skills or knowledge during this partnership project?

☐ Yes

☐ No

If Yes, please specify.

45. Were any additional students attracted to enroll at the university as a result of this partnership project?

☐ Yes

☐ No

If Yes, please specify.

46. Are there any other related projects that benefited because the university completed this partnership project?

☐ Yes

☐ No

If Yes, please specify.

47. Did the partnership result in enhancements to the existing curriculum or new programs that are planned as a result?

☐ Yes

☐ No

If Yes, please specify.

48. Are there any other general benefits to the university?

Yes

No

If Yes, please specify.

49. Are there any other benefits that you expect in the future that have yet to be realized?

Yes

No

If Yes, please specify.

50. Would you participate in a partnership again?

Yes

No

Undecided

Please explain your answer.

Industry Corporation Benefits

31. Did this partnership result in any new products or processes?

Yes

No

If Yes, please specify.

32. Were there any improvements to your employees' skills or knowledge during this partnership?

Yes

No

If yes, how were the improvements to your employees' skills or knowledge measured.

33. Did you have any increased sales now or do you expect any in the future as a result of this partnership?

Yes

No

If so, please specify about how much do you expect (dollar amount or percentage increase)?

34. Did this partnership result in any cost savings or an increase in revenue now or in the future? (There may not have been a new product, but the partnership may have enhanced existing products/services.)

☐ Yes

☐ No

If Yes, please specify.

35. Did it create any new jobs?

☐ Yes

☐ No

If Yes, please specify how many.

36. A negative result may also be positive. Did this partnership prove a product or process not feasible and hence save your company further expense?

☐ Yes

☐ No

If Yes, please describe.

37. Has this partnership made your company more competitive?

☐ Yes

☐ No

If Yes, please describe how.

38. Are there any other general benefits to the company?

☐ Yes

☐ No

If Yes, please specify.

39. Are there any other benefits that you expect in the future that have yet to be realized?

☐ Yes

☐ No

If Yes, please specify.

40. Would you participate in a partnership again?

☐ Yes

☐ No

☐ Undecided

Please explain your answer.

Partnership Challenges

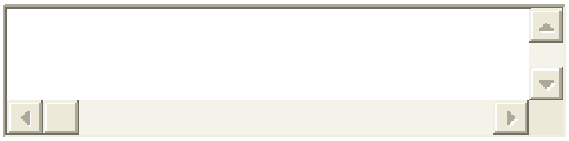
51. Did any of the challenges mentioned below occur in this partnership?

	Very Frequently	Frequently	Sometimes	Occurred once	Didn't occur	n/a
Cultural differences						
Conflict of interest						
Differing partnership goals						
Resource availability						
Interpersonal conflicts						
Difficulty managing the collaboration						
Lack of understanding of how the other partner operates						
Loss of control of proprietary information						
Timeliness of project work completion						
Timeliness of communication						
Negative impact on the mission, finances or reputation of each organization						
Lack of clarity of mutually agreed upon goals						
Quality of deliverables						

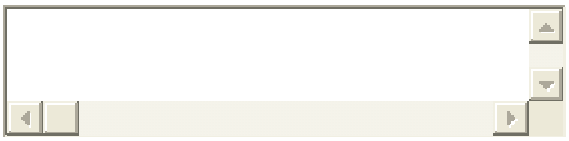
Other Challenges (please specify)

52. For any of the challenges experienced above, please describe them.

53. How was resolution reached on any of the challenges experienced? Or if the challenge hasn't been resolved, describe where you are in the process?



54. Looking back, what could have been done to avoid these conflicts?



Other Comments

55. Please provide any other comments describing the partnership formation, communication, benefits, and challenges not previously asked in this survey.

Thank You

Thank you for providing your input for this research. If additional details are needed, you will be contacted for a follow-up interview.

APPENDIX D: Permission to Adapt Survey

-----Original Message-----
From: Ted Heidrick [mailto:]
Sent: Saturday, November 17, 2007 1:19 PM
To: Michelle Walker
Subject: Re: Industry-University Partnerships Survey - Inquiry #2

Absolutely, please do. I would be very interested in seeing it used. All I would ask is that you send me a copy of any results/papers that you write which use the results of the survey. I am sure the results will be very interesting.
TH

--
T.R.Heidrick, Ph.D. P.Eng
Poole Professor in Technology Management
Faculty of Engineering and School of Business
University of Alberta

Quoting Michelle Walker < >:

Dr. Heidrick,

I have reviewed your article on Industry-University Partnerships listed below for my dissertation research on workforce development partnerships between industry and higher education. My research is an evaluative case study that will describe an existing partnership, including their initial formation and the resulting relationship between a higher education institution and a selected corporation.

I am interested in using the survey questions outlined in Appendix A of this article and would like your permission to use it in my dissertation research. I can provide you with more information on my research if you wish. I would be very grateful for permission to use this valuable tool and await your response.

Thank you for your consideration.

Heidrick, T. R., Kramers, J. W., & Godin, M. C. (2005). Deriving value from industry-university partnerships: A case study of the Advanced Engineering Materials Centre. Engineering Management Journal, 17(3), 26.

Michelle Walker
EdD Doctoral Student
Pepperdine University

APPENDIX E: Interview Form

Interview Form	
Dissertation Research:	Industry – higher education partnerships: A case study analysis of learning together
Date / Time:	
Location:	
Partnership Organization:	
Interviewee:	
Interviewee position:	
Time allocated to interview:	1 hour

Q1. If you had to list them sequentially, what were the steps taken to form the partnership?

Q2. You briefly described your role in the partnership in your survey response. Can you tell me a little bit more about how you were involved in the partnership?

Q3. Can you tell me a little bit more about the polymer certification program itself. e.g. how many classes, how many students, ongoing usage, etc.

Q4. When was the first certificate program offered? How long did it take to complete? How many students participated in the 1st offering?

Q5. Differing partnership goals and timeliness of project work completion were named as the biggest challenges in the partnership. Can you tell me more about these two challenges?

Q6. You briefly described the challenges to your organization in your survey response. Can you tell me a little bit more about how your organization worked through the challenges that resulted from the partnership?

Q7. There were evaluations conducted after the training courses that were

part of the certificate program, but there wasn't a formal evaluation process on the partnership itself. What feedback would you provide to the partnering organization about the process?

Thank You	Thank individual for participating and assure him/her of confidentiality of responses.

APPENDIX F: Pepperdine University IRB Approval

PEPPERDINE UNIVERSITY

Graduate School of Education and Psychology

May 2, 2008

Michelle Walker

Protocol #: E0308D21
Project Title: Industry-Higher Education Partnerships: A Case Study Analysis of Learning Together

Dear Ms. Walker:

Thank you for submitting your application, *Industry-Higher Education Partnerships: A Case Study Analysis of Learning Together*, for exempt review to Pepperdine University's Graduate and Professional Schools Institutional Review Board (GPS IRB). The IRB appreciates the work you and your faculty advisor, Dr. Kay Davis, have done on the proposal. Upon review, the IRB has determined that the above entitled project meets the requirements for exemption under the federal regulations (45 CFR 46 - http://www.nihtraining.com/ohsrsite/guidelines/45cfr46.html) that govern the protections of human subjects. Specifically, section 45 CFR 46.101(b) (2) states

> (b) Unless otherwise required by Department or Agency heads, research activities in which the only involvement of human subjects will be in one or more of the following categories are exempt from this policy:
>
> **Category (2) of 45 CFR 46.101**, research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless: a) Information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and b) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

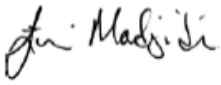
Based upon review, the GPS IRB has determined that **your proposed study is exempt from further IRB review.**

Your research must be conducted according to the proposal that was submitted to the IRB. If changes to the approved protocol occur, a revised protocol must be reviewed and approved by the IRB before implementation. For any proposed changes in your research protocol, please submit a **Request for Modification Form** to the GPS IRB. Because your study falls under exemption, there is no requirement for continuing IRB review of your project. Please be aware that changes to your protocol may prevent the research from qualifying for exemption from 45 CFR 46.101 and require submission of a new IRB application or other materials to the GPS IRB.

A goal of the IRB is to prevent negative occurrences during any research study. However, despite our best intent, unforeseen circumstances or events may arise during the research. If an unexpected situation or adverse event happens during your investigation, please notify the GPS IRB as soon as possible. We will ask for a complete explanation of the event and your response. Other actions also may be required depending on the nature of the event. Details regarding the timeframe in which adverse events must be reported to the GPS IRB and the appropriate form to be used to report this information can be found in the Pepperdine University Protection of Human Participants in Research: *Policies and Procedures Manual* (see link to "policy material" at http://www.pepperdine.edu/irb/graduate/).

Please refer to the protocol number denoted above in all further communication or correspondence related to this approval. Should you have additional questions, please contact me. On behalf of the GPS IRB, I wish you success in this scholarly pursuit.

Sincerely,



Farzin Madjidi Ed.D.
Pepperdine University
Graduate School of Education and Psychology
6100 Center Drive 5th Floor
Los Angeles, CA 90045

cc: Dr. Lee Kats, Associate Provost for Research & Assistant Dean of Research, Seaver College
Ms. Ann Kratz, Human Protections Administrator
Dr. Stephanie Woo, Chairperson, Graduate and Professional Schools IRB
Ms. Jean Lee, Manager, Graduate and Professional Schools IRB
Dr. Farzin Madjidi
Dr. Kay Davis
Ms. Christie Dailo

APPENDIX G: University of Akron IRB Waiver

Michelle Walker

From: Rosalie Hall
Sent: Tuesday, May 06, 2008 11:08 AM
To: Michelle Walker
Cc: McWhorter,Sharon
Subject: Re: Inquiry to U of A IRB

Dear Michelle,
Both our IRB administrator (Sharon McWhorter) and I took a look at the materials that you sent, and we are in agreement that you would not need to go through a review process here at the University of Akron, given your approval from Pepperdine and the fact that no University of Akron faculty, staff, or graduate students will be playing a researcher role. Thanks for all of your work in keeping us informed, and good luck with your proposed research study.
Sincerely,
Rosalie Hall

Rosalie J. Hall, Ph.D.
IRB Chair
Department of Psychology
University of Akron

Michelle Walker wrote:

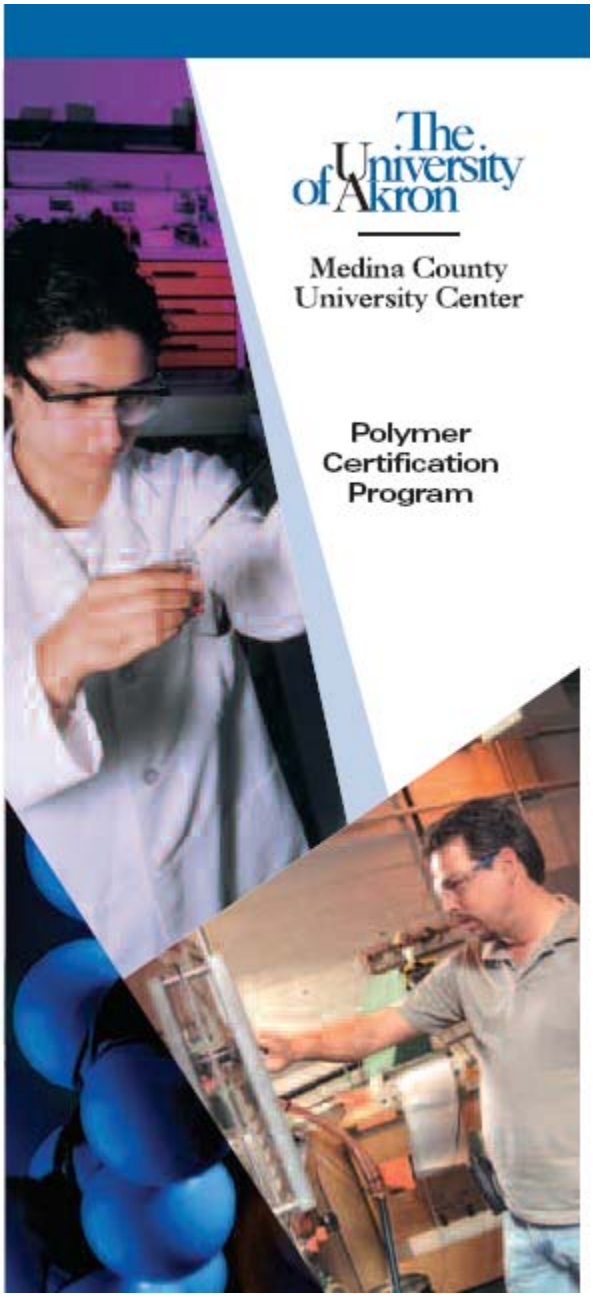
> Hello Ms. Hall,
> I have received approval from the Pepperdine IRB & have attached my approval letter, my Exempt IRB application, &the written approvals from the Polymer Certification program participants. If you need additional information, please don't hesitate to contact me.
>
> I look forward to hearing from you on how I should proceed.
>
> Michelle Walker
> *EdD Doctoral Candidate*
> *Pepperdine University*

From: Rosalie Hall
Sent: Thursday, March 13, 2008 12:53 PM
To:
Cc: McWhorter,Sharon
Subject: Inquiry to U of A IRB

Hi Michelle,

Thanks for checking in with us about your proposed research project examining the U of Akron partnership to create the Polymer Certification Program. I consulted with Sharon

APPENDIX H: Polymer Certification Program Brochure

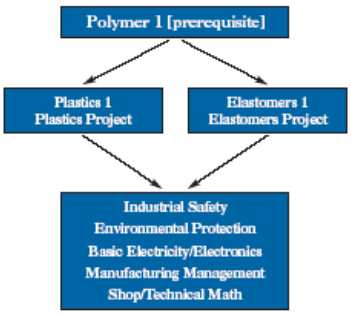


Polymer Certification Program

Based upon more than a year of collaboration with representatives from numerous polymer industries, The University of Akron Medina County University Center is pleased to offer its NEW Polymer Certification Program. This unique program will help employees gain the knowledge and skills that are necessary to enable them to make their companies more competitive and profitable.

Curriculum Structure

The certification program is comprised of 128 hours of instruction with six core courses and two courses in either the plastics or elastomers specialization.



Module Topics

Polymers Components

Polymers 1: [prerequisite for all polymer modules]

Overview of basic chemical, physical and thermal properties and applications of polymers, including material identification and polymer nomenclature. Analytical testing for mechanical, rheological and physical properties will be covered as well. This course is a prerequisite for both the Plastics and Elastomers specializations.

Plastics 1:

The study of plastic materials and processes from a product manufacturing perspective. This course focuses on classifications of thermoplastics, compounding, blending and associated additives. An in-depth study of major processing and fabricating technologies as well as secondary operations also will be presented.

Plastics Project:
This course places a particular emphasis on the identification of processing problems and defining variables for troubleshooting. Case studies involving thermoplastics will be presented and students will then choose a topic, research and discuss their chosen topic with their classmates and conclude by presenting their findings to the class.

Elastomers 1:
The study of natural and synthetic rubber, compounding ingredients and various mixing processes commonly used in the industry. Vulcanization, molding and physical properties also will be emphasized.

Elastomers Project:
This course places a particular emphasis on the identification of processing problems and defining variables for troubleshooting. Case studies involving elastomers will be presented and students will choose a project topic, research and discuss their chosen topic with their classmates and conclude by presenting their findings to the class.

General Industrial Components

Industrial Safety:
Basics of industrial safety are covered. Includes state and federal regulations as related to specific areas.

Environmental Protection:
A contemporary overview of the science and management of occupational health and safety programs, policies, and procedures in industrial and business environments.

Basic Electricity/Electronics:
Principles of electronics: resistors, inductance, capacitance, transistors, microprocessors, power sources, motors, generators, test equipment, circuit diagnosis and troubleshooting.

Manufacturing Management:
A survey of basic concepts of management and their interrelationships to a manufacturing environment. Includes production control, quality control, work measurement and employee motivation.

Shop/Technical Math:
Fundamental concepts and operations, functions, graphs, factoring and algebraic fractions, variation and quadratic equations.

Flexible Delivery Method

Because in today's hectic environment employees are stretched thin trying to balance both work and family obligations, there is often little time left for professional development. Likewise, the fast pace of the production environment, combined with the expense of sending employees away to lengthy workshops, employers are often limited in the amount of training that they can provide their employees. The NEW Polymer Certification is designed to incorporate a unique blend of Web-based instruction, periodic classroom sessions and laboratory experiences that permit employees to learn the majority of the content 24/7.

The complete certification program includes:

Independent Web-based Instruction: The participant can access the course via the Internet at a time that is convenient to his/her schedule.

Live Web-based Instruction: By accessing scheduled live chat sessions via the Internet, the participant is able to interact with both the instructor and other class participants.

Classroom/Laboratory Sessions: The participant will attend periodic in-person sessions at The University of Akron. These sessions will give the learner face-to-face interaction with the instructor as well as provide key hands-on experiences in a polymer lab.