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An assessment of the workplace readiness skills desired by industries and perceived by college personnel in Alabama

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AN ASSESSMENT OF THE WORKPLACE READINESS SKILLS DESIRED BY INDUSTRIES AND PERCEIVED BY COLLEGE PERSONNEL IN ALABAMA

By

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Postsecondary graduates often do not have the skills needed for entry level employment in today's workforce. Postsecondary students should have a curriculum that is relevant to today's workforce needs to increase the graduates marketability and success in our global economy. This study examined the workplace readiness skills desired by the high-tech industries in Alabama compared to the perceived importance of those skills from educators in Alabama's Two-Year College System and the integration of those skills in the curricula.

It was believed that there was no significant difference in the perceptions of educators and industry supervisors in reference to their perceptions of workplace skills and integrating those skills into the curricula. A web-based survey was sent to a select group of high-tech industry supervisors and educators from technical programs in Alabama.

The findings indicate that high-tech firms are looking for people who have basic workplace skills and competencies that include but are not limited to the following: honesty and integrity, service to customers, responsibility, ability to work in teams, listening skills, and the ability to solve problems. There was general agreement among the educators and supervisors on the importance of 22 of the 36 workplace readiness skills. However, for 14 of the workplace readiness skills, there was sufficient evidence to reject the null hypothesis.

Industry supervisors indicated that a worker having the following workplace skills were not as important to their operation as the educator group thought they were: 1) selecting materials and facilities usage, 2) acquiring and evaluating information, 3) organizing and maintaining information, 4) understanding systems, 5) selecting technology, 6) maintaining and troubleshooting equipment, 7) reads well, 8) making good decisions, 9) seeing things in the mind's eye, 10) knows how to learn, 11) knows how to reason, 12) applies technology to tasks, 13) does simple arithmetic, and 14) has self-esteem.

Future research is needed to determine whether the findings in this study can be replicated. The researcher recommends expanding the research to include more participants in the study.

DEDICATION

I would like to dedicate this research to my loving wife Alisa and our three wonderful children, Hayden, Hunter, and Halle, who have supported me wholeheartedly throughout this rigorous process. Words cannot express the deep heartfelt gratitude for all of the love and support my family has given me. My three wonderful children have given me the inspiration and my loving wife has provided the encouragement. I will forever be grateful to you for your patience, kindness, and most of all, love.

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CHAPTER I

INTRODUCTION TO THE STUDY

Graduates from postsecondary institutions often lack the practical preparation needed to ensure viable entry and sustainability in today's workforce. The skills needed for our emerging workforce have changed dramatically from those needed during the industrial age (Robinson, 2002). Research suggests that our higher education institutions should prepare students with relevant workplace skills for current/present and future demands. Postsecondary students should have a rigorous, but relevant curriculum that will increase their marketability and viability in today's workplace. Higher education in America today devotes too much time on coursework that is irrelevant to the workplace (National Association of Manufacturers, 2003). Industrial firms are demanding prospective employees possess both general knowledge and specific employability skills, including but not limited to, the ability to communicate orally and in writing, effective implementation of analytical knowledge, ability to think critically, solve problems, and utilize basic computer skills. Additional skills may consist of overall good work ethics and attitudes such as: attendance and punctuality, being able to listen effectively, and possessing the ability to work in teams. College students of today must be able to transfer the curriculum taught in postsecondary institutions to the work environments (Turner, 2000).

Alabama has had many large manufacturing companies locate their plants in Alabama including Mercedes, Honda, Hyundai, Toyota, and Boeing. These corporations have had a steady impact on the number of available technicians who are eligible for work in this highly automated and technically advanced environment. In addition to the original equipment manufacturing (OEM) plants, tier-one, tier-two, and tier-three supplier companies have also located throughout the state of Alabama.

Unfortunately the numbers of qualified technicians applying for jobs within these companies have not remained sufficient with the ever-increasing needs and demands. Industries reported many positions available in their organizations without qualified personnel to fill them (ACETEA, 2006). Finding qualified technicians available for work in a particular industry requires the confluence of many variables and encompasses the correct alignment of these with the skills required for the position.

One of the major variables is an individual's performance skills, abilities and academic knowledge level. If these are not in synch with the desired skills and abilities that employers need, then there is a mismatch in what is available and what employers really need.

Academic knowledge, skills and abilities are each very specific and measurable from discipline to discipline. The competencies can be identified and measured across diverse boundaries and focused in specific areas. Once identified and quantified, they can be compared to specific tasks within disciplines as well as to a person's knowledge, skills, and abilities.

Purpose of the Study

The purpose for conducting this study was to determine the perceptions of community college technical faculty and administrators and supervisors of industrial firms who are identified as high-tech companies by the 2006 Alabama Industrial Directory in regards to the workplace skills and competencies that need to be taught and included in the curricula (Alabama Development Office, 2006). The primary mission of the two-year college system in Alabama is to provide quality instructional services needed by the public (Appendix A). Alabama's Two-Year College System (Appendix B) offers a wide variety of technical and academic programs. Each institution offers specific programs to meet the needs of the business and industries in the college service area (Appendix D). Technical education programs must improve to meet a more demanding industrial society. Too many students are leaving educational institutions deficient in basic skills. This deficiency leaves them ill prepared for entering the world of work. Work ethics including attitudes and behaviors, as well as basic reading, writing, and math skills need improvement (Cohen & Brawer, 2003).

The significance of this study is to provide information that will assist community colleges in designing an integrated curriculum that will prepare students to meet the demands of employers and the skills they require.

Statement of Problem

There have been many instances in which the researcher has encountered college graduates who have indicated that they are having a difficult time in finding and securing

jobs because they lack the experience and skills necessary to perform the job. The Calhoun County Chamber Economic Summit (2005) identified through a recent study of existing industries located in central Alabama that one of the major problems that human resources personnel were facing was the need to hire technically competent individuals for jobs that they had available but the applicants did not possess the required skills to perform the jobs.

The problem investigated in this study was the perceptions of the needed workplace readiness skills as perceived by supervisors in high-tech industries compared to educators from community colleges in Alabama. In community and technical colleges, there is not enough knowledge of the workplace skills that are required of business and industries. Therefore, colleges do not have a clear understanding of the knowledge, skills, and abilities that employers of community and technical college graduates require. As a result, there is a disconnect between what colleges are teaching and what industries really need. Colleges include curriculum that is not relevant to the needs of industry. The U.S. Department of Labor called for a prescribed set of skills to be taught in technical programs known as the Secretary's Commission on Achieving Necessary Skills (SCANS) Report 1991). While the SCANS Report has provided a beginning, with particular relevance for the workplace, it does not identify any specifics on how to accomplish this task. The SCANS Report includes a set of 36 competencies that industries have identified as important traits that employees or potential employees should possess.

Research Questions

The following questions helped the researcher determine the workplace readiness skills important to industry supervisors as compared to educators in Alabama:

1. What workplace skills are desired most by employers in the high-tech industries?
2. What workplace skills do college personnel deem desirable by employers in the high-tech industries?
3. Is there general agreement among employers and college personnel of the importance of workplace skills that should be included in the curricula of two-year technical programs in community and technical colleges in Alabama?
4. Do college personnel and employers in this study believe that the two-year colleges in Alabama play a role in the preparation of graduates for the workforce?

Hypothesis

The following hypothesis, stated in the null form, was tested in this study:

1. There is no significant difference between the perceptions of college personnel and supervisors in high-tech industries regarding the importance of teaching workplace skills in the Two-Year College System in Alabama?

Limitations

This study is limited in the following ways:

1. The data is applicable to technical programs in two-year colleges in Alabama only. The results should not be generalized to other colleges in other states.
2. The data is applicable to high-tech industries in Alabama only. The results should not be generalized to other industries or businesses in Alabama. The results should not be generalized to other high-tech industries outside of Alabama.
3. The data obtained from the research participants is self-reported and based on their opinions. There is no method to verify that the information is correct.

Delimitations

The delimitations include the following:

1. The educator group only included technical faculty and administrators from Alabama's Two Year College System.
2. The industry group only included supervisors from Alabama's high-tech industry.
3. The survey instrument reflects the 36 components of the SCANS Report in addition to 11 questions that deal with the actual integration of workplace skills into the curricula of the two-year colleges in Alabama.

Assumptions

This study is based on the following assumptions:

1. Participants in this study were knowledgeable of the two-year college system in Alabama.
2. The data that was collected from research participants were representative of administrators and faculty of the Alabama College System, and of supervisors in Alabama high-tech industries.
3. Alabama high-tech industries had a stake in the workplace skills development training in the postsecondary two-year college system in Alabama.
4. All research participants were honest and ethical in responding and answering the survey questions.

Definitions of Terms

In an effort to clarify and better explain the terminology used in this study, the following terms are defined:

Academic skills – A set of skills that include reading, writing, and math.

Administrator – An individual whose responsibilities may range from mid-level management to executive level college personnel. The primary duties of an administrator are management type in nature, such as a coordinator, director, associate dean, dean, and vice president (Cohen & Brawer, 2003).

Two-year colleges – Community colleges, technical colleges, and junior colleges that offer freshman and sophomore level courses toward the completion of an associate

degree in science, applied science, and liberal arts. They offer courses in technical programs that lead to short certificates, certificates, and various other certifications. Courses are also offered in continuing education for the purpose providing additional specialized education courses and programs for the community (Alabama College System, 2006).

Faculty – Individuals whose primary job responsibilities are instructional in nature in classroom, laboratory, or lecture settings (Cohen & Brawer, 2003).

Perkins Bill – Carl D. Perkins Vocational and Applied Technology Education Acts passed by the United States Congress sponsored by Carl D. Perkins, of Kentucky (McClure, 1985).

SCANS Report – Secretary's Commission on Achieving Necessary Skills – A report of recommended basic skills produced by the United States Department of Labor (Secretary's Commission on Achieving Necessary Skills, 1991).

Workplace readiness skills – Those skills deemed necessary by business an industry for a successful, productive employee to possess. They include life skills, academic skills, and technical skills (National Center for Research in Vocational Education 1997).

High-tech companies – A company is identified as a high-tech company when 51% or more of the company's employees are engaged in research and development or they are identified as scientists or technicians (Alabama Development Office, 2006).

Soft skills – The skills and abilities needed to interact and conduct business with both internal and external customers. Anything outside of product and development skills can be considered soft skills (Robinson, 2002).

Basic employability skills – The skills required to acquire and retain a job, these are the foundational skills upon which to build job-specific skills such as personal and interpersonal relationships, problem solving, and organization skills (Lankard, 1990).

Work ethics – May be defined in many different ways but for this study will be defined as reliability and trustworthiness, willingness to learn, responsibility for one's actions, and willingness to work, and willingness to work cooperatively (Ford & Herren, 1995).

Technical skills – Proficiency that is acquired or developed through training or experience, an art, trade or technique requiring the use of hands, body, and mind (Robinson, 2002).

(OEM) Original Equipment Manufacturer – The original company that designed, built, and produced a particular piece of equipment. Examples used in this study are Honda, Mercedes, Toyota, and Boeing (ACETEA, 2005).

Tier 1, 2, 3 suppliers – Are suppliers for OEM's such as Honda, Toyota, GMC, and Ford, a tier-1 supplier makes parts directly for an OEM, where as a tier-2 or tier-3 company makes parts for the tier-1 supplier (ACETEA, 2005).

CHAPTER II

LITERATURE REVIEW

Introduction

The purpose of this study was to determine the perceptions of community college technical faculty and administrators and supervisors of high-tech companies in Alabama with regard to the workplace skills and competencies that need to be taught and included in the curricula in the technical programs in the Two-Year College System in Alabama. A review of the literature related to the integration of workplace skills and academic competencies in the curricula of the postsecondary institutions in Alabama were presented in this chapter. The information in this chapter is presented in five parts: (a) history of vocational/technical education, (b) government influence on vocational/technical education, (c) ACETEA Study, (d) CARCAM Study, (e) Alabama's current workforce, and (f) the SCANS Report.

History of Vocational/Technical Education

One of the greatest concerns for educators is ensuring that graduates are equipped with current and relevant skills for the workplace. The real world concern is what the student actually learned, how he can apply the learned knowledge, and how he can integrate the learned knowledge into the workplace. Can graduates of the two-year

college system in Alabama meet the performance expectations that industries demand? Can graduates make the connection between what is taught in college and its relationship to the workplace? These are questions that educators should have answers for; moreover, they should be knowledgeable of the skills, traits, and/or competencies that industries are looking for in a potential employee.

Cohen and Brawer, 2003 stated that as a curricular category, vocational education emerged after the Smith-Hughes Act of 1917, encompassing several separate and definable areas of subject matter (i.e., agriculture, business, home economics, industrial, and marketing education).

According to Roberts (1965), "The history of vocational education is the history of man's efforts to learn to work" (31). If this statement is referring to work done in and through the family, then this statement is a fair conclusion. The earliest form of vocational education largely involved the "pick up" method of acquiring knowledge and competence through observation and imitation, often of an older sibling or other family member. This process was later formalized through what is now known as an apprenticeship, with a master who was under contract to teach students a vocation. The apprenticeship system became the most influential system of vocational education during the late Middle Ages (McClure, Christman, & Mock, 1985). During this time period, apprenticeships usually lasted seven years and involved moral education in addition to vocational training. The apprentices moved from trainee apprentices to journeyman and, with specific accomplishments, to the master level craftsman. By the mid 1800's, the

apprentice system had declined substantially. This decline was attributed to an increase in mechanization and expanded commerce which increased the competition for workers (Bennett, 1926)

During the Colonial times in America, the apprenticeship system was very strong for a wide variety of occupations, including trades, merchants, housekeeping, law, medicine, and teaching. Evans (1971) wrote that the first example of the separation of vocational and academic instruction took place when the masters of the eighteenth century were unable to provide adequate non-vocational instruction for their apprentices and began to send them to evening schools to learn the basic academic skills of reading, writing, and arithmetic. By the mid 1800's, the apprenticeship system became less useful because it was too slow to meet the increased demands by factories of the time. Factory methods needed a different profile of changing skills (McClure, et al., 1985). This is one of the first examples of the separation of academic and vocational education.

As noted by Barlow (1967), vocational education has emerged by a number of forces, approaches to instruction, instructional settings, and subject matter fields that developed somewhat independently. Robert Owens, an educational visionary, promoted "…combining mechanical and agricultural with literacy and scientific instruction…" and "…making every scholar a workman and every workman a scholar…," (Evans, 1971, p.57). Through lyceums and mechanics institutes, the idea of combining vocational and general education resulted in the establishment of land-grant colleges for the purpose of postsecondary vocational education. The mechanics institutes were originally developed in England for the purpose of providing evening classes for adults in a variety of subjects,

both academic and vocational (Bennet 1926). Lyceums were mechanics institutes that addressed the needs of urban workers. Lyceums offered similar services for farmers and trades people in small towns. Approximately 1000 lyceums were in operation by 1833 and were organized by states into a national movement. The local lyceum provided a place and context for working people to gather and discuss topics of mutual interest such as mechanics, chemistry, botany, mathematics, hydraulics, history, and politics (Copa, 1985).

Cremin (1961) stated that at the Philadelphia Centennial Exposition of 1876, Victor Della Vos, Director of the Moscow Imperial Technical School, exhibited his drawings, models, and tools illustrating how he turned 'construction' shops into 'instruction' shops. The president of the prestigious Massachusetts Institute of Technology, John D. Runkle, saw the exhibit that Della Vos had on display and began reforming American education by implementing Della Vos' methods to teach manual education. He wrote "in manual instruction lay the key to a new balanced schooling that would again marry the mental and manual, thereby preparing people realistically for life in an industrial society" (Cremin, 1961, p.26). Calvin M. Woodward helped to establish Della Vos' discovery as a philosophy of education. In 1879, Mr. Woodward helped to establish the Manual Training School of Washington University, which was the first of its kind in the United States. This program equally divided mental and manual labor. Mathematics, drawing, science, languages, history, and literature were combined with instruction in carpentry, wood turning, patternmaking, iron chipping, and filing, forge work, brazing and soldering, and bench and machine work in metals (Cremin, 1961).

The proper balance of both academics and manual training created a new vision of popular schooling suitable to the demands of an industrial age. Cremin (1961) wrote the influx of immigrants in the 1880's who gained control of the labor unions, brought about deterioration of the apprenticeship system. The union leaders offered very few opportunities for American boys to apply for apprenticeships; therefore the schools would have to assume those functions. Germany and England's rising industrial power, based on excellent technical schools, was a warning to the United States that better vocational education should be provided for Americans. The National Association of Manufacturers was organized in 1896, and its Committee on Industrial Education was appointed in 1905 to address issues of vocational training. In 1906 the National Society for the Promotion of Industrial Education was established. Through the efforts of these two organizations, the attitude of labor was changed to support vocational education (Cremin, 1961).

Evans (1971) stated that these manual training schools did not fully satisfy the vocational training needs for various types of skilled manpower and a cry for "real" vocational education was heard. The result was state and federal legislation supporting more specific instruction in a limited number of occupational fields. Roberts (1971) wrote the vocational education law of 1917, known as the Smith-Hughes Act, was a culmination of a conflict of ideals between those who believed a more practical education was needed and those who felt that vocational education in the public schools would lower the quality of education. Vocational schools were established, and once again, vocational and general education were polarized.

Evans (1971) reported that a cycle can be observed which is repeated approximately once every generation

(1) establishment of a reasonably comprehensive high school,

(2) generally decreased emphasis on vocational education,

(3) establishment of separate vocational schools, and

(4) the re-establishment of comprehensive high schools which emphasize vocational education. (p.58)

These cycles, Evans reported, may demonstrate that many general educators think vocational education should somehow be improved in efficiency, and the accuracy of the feeling many vocational educators have that general educators look down on them and try to minimize their influence. Thus, a polarization of vocational and general education occurs. He emphasized that what we need is a community high school and a real community college which is not content to have competing programs under the same roof, but "fuses academic and vocational education as everyday partners". (p.58)

Whatever the prevailing model of education, there will be critics. Rudder (in Lauderdale, 1987) reminds us that

> Unlike the linear metaphor of progress which views the public schools as moving with or even propelling society toward some higher goal, the organismic vision of the mission of public education is one of adaptation to the pressures, demands, and opportunities presented by the broader social environment. The organismic approach to public schooling sees the relationship between school and society as a living response and not as a

> mechanical reaction. The healthy school, like the healthy organism, lives in an encounter with its environment from which it draws nourishment for growth, absorbs pain, changes and moves differently in the face of shocks and surprises, grows ill and is healed, and through it all, displays the resilience necessary to survive and to perpetuate itself through and for the sake of future generations. (p.36)

Lauderdale (1987) wrote, "Educational change will continue to be a slow and uneven process – there are no panaceas, no universal strategies to heal the institution" (p.36). The extent in which workplace skills currently needs to be integrated into the curricula of public education will be determined by the constituents served by public education.

Government Influence on Vocational/Technical Education

The period from the middle 1800's to early 1900's was very significant to vocational education in the United States. This is a time period when the federal government began to encourage vocational education through special legislative acts such as the Morrill Act of 1862 and later amendments to the Morrill Act of 1890, which provided for colleges with major focus on training for working-class students and emphasizing agriculture and mechanics education. Many of the countries' Land Grant Colleges began their existence during this time period (Copa, 1985). By the turn of the century, the federal government was emphasizing funds for practical education (i.e., professional and vocational) over general education (i.e., liberal arts and humanities).

The Davis bill of 1909 was the first legislative act that used the term vocational education (Roberts, 1971). The Smith-Hughes Act of 1917 and the George-Dean Act of 1937 were significant in providing special federal appropriations that were earmarked for vocational programs. These funds were used for salaries for teachers, supervisors, and directors of agricultural, home economics, mechanical, trades, and industrial programs (McClure, et al., 1985). The success of vocational education training for the war effort is credited with the passage of the George-Barden Act of 1946, which again increased federal funding for vocational education programs.

The "GI Bill" or the Servicemen's Readjustment Act of 1944 was signed into law by President Franklin D. Roosevelt. Vocational education was an important recipient of the benefits; 40 percent of the servicemen who received training did so in educational institutions at less that the baccalaureate level, but at a level higher than public secondary schools. Postsecondary vocational education had to expand to meet this demand. The GI Bill was a major factor in the growth of the two-year postsecondary educational institution (Humphrey, 1996). The 1950's was a period of re-examining vocational education programs and funding sources. In 1953, the Vocational Education Department moved to the Office of Education in the in the new cabinet-level Department of Health, Education, and Welfare. This allowed vocational education greater opportunities for funding sources. During John F. Kennedy's presidency, the U. S. had experienced many technological changes which changed the nature of work. President Kennedy formed a panel of experts to examine funding for vocational education and to make recommendations for future use. The results of the study identified many

recommendations that greatly impacted vocational education. Using the panel's recommendations, new federal legislation was drafted and the Vocational Education Act of 1963 was signed into law by President Lyndon B. Johnson. Funding for vocational education was substantially increased. The later Vocational Education Amendments of 1968 and 1972 added to those previous changes and greatly increased the federal funds available to community colleges (Cohen & Brawer, 2003).

The Vocational Act of 1963 specifically included postsecondary institutions, primarily community, junior, and technical colleges in its authorization of public institutions to offer vocational education programs for preparing a workforce for the labor market. Prior to this, acts authorizing federal funds for vocational education were provided for student training in secondary schools (Humphrey, 1996).

The Vocational Act of 1963 and its subsequent 1968 and 1972 amendments are summarized as follows:

> It is the purpose to maintain, extend, and improve existing programs of vocational education, to develop new programs of vocational education, to provide part-time employment for youth who need such employment in order to continue their vocational training on a full-time basis, to provide instruction so that persons of all ages in all communities will have ready access to vocational training or retraining which is of high quality, realistic in relation to employment and suited to the needs, interests, and ability of the persons concerned…(Thompson, 1973, p.78).

> The 1968 amendments specified new programs to be included in the funding: for the disadvantaged, exemplary programs, curriculum development programs, and consumer and homemaking education programs (Thompson, 1973, p. 95).

The 1968 amendment, in addition to maintaining funding for postsecondary vocational education, also required each state to establish a statewide advisory council that would: (a) advise the Education Commissioner of the regulations for and administration of vocational education programs, (b) conduct annual reviews of the effectiveness of vocational education, and (c) conduct independent evaluations of vocational education programs (Humphrey, 1996).

Other federal programs provided additional funds that the community colleges shared: the Comprehensive Employment and Training Act (CETA) of 1973, Job Training Partnership Act (JTPA) of 1982, and Carl D. Perkins Vocational Education Act of 1984 (Cohen & Brawer, 2003). The CETA program was enacted to train workers and to provide them with jobs in the public service. The program offered work to those with low incomes and the long term unemployed as well as summer jobs to low income high school students. Full-time jobs were provided for a period of 12 to 24 months in public agencies or private not for profit organizations. The intent was to impart a marketable skill that would allow participants to move to an unsubsidized job. Nine years later, it was replaced by the Job Training Partnership Act (JTPA). There were very few changes from the CETA program to the JTPA program (Paris, 1994).

The Carl D. Perkins Vocational and Technical Education Act were originally authorized in 1984, and most recently in 1998. The purpose of Perkins is to provide individuals with the technical and academic skills needed to succeed in a knowledge and skills-based economy. Perkins supports career and technical education that prepares its students both for postsecondary education and the careers of their choice (ACETEA, 2006). Perkins helps to regulate and ensure that technical programs are academically rigorous and up-to-date with the needs of industry. Perkins funds provide the principal source for innovation and program improvement, and help to drive state support. State and local funding are responsible for supporting the technical education infrastructure, paying teacher salaries, and other operating expenses.

ACETEA Study

The Alabama Colleges for Electronic Technology Education Advancement (ACETEA) is a grant funded by the National Science Foundation which began in 2003 and is affiliated with the Alabama Microelectronics Consortium with Lurleen B. Wallace Community College as its fiscal agent (ACETEA, 2006). From inception, the focus of ACETEA has been to support economic development efforts of Alabama through workforce development initiatives in the electronics industry. The Microelectronics Consortium is comprised of 16 of Alabama's 26 two-year technical and community colleges (Appendix B). The Consortium participates as a partner with the Alabama Development Office (ADO) and the Economic Development Partnership of Alabama

(EDPA) in the Alabama Semiconductor Initiative, formed to attract microelectronic industries to Alabama (ACETEA, 2006).

The purpose of this Consortium was to develop curriculum in microelectronics and organized professional development activities for college faculty and staff who were teaching the new curriculum. ACETEA quickly began the project by surveying college faculty and administrators as well as industry representatives from the manufacturing sector throughout the state of Alabama. The purpose of the survey was to provide detailed insight as to the specific needs of the colleges and manufacturing industries in the state of Alabama. ACETEA's summary report summarizes state, regional, and local level outcomes of evaluating over 1,300 technical competencies ranging from soft skills to math and science skills to basic electricity and electronics skills to advanced technology skills (ACETEA, 2006).

The study ACETEA conducted included a wide range of skills sets including both soft skills and technical skills in many different areas. The skilled areas were divided into the following categories: (1) Soft Skills, (2) Math and Science, (3) Electrical and Electronics, (4) Automated Process Controls, (5) Computer Integrated Manufacturing, (6) Electromechanical Systems, (7) Robotics, and (8) Wireless Communications. For the purpose of this research, the results from the survey that deal specifically with soft skills will be the only section used.

The surveys were constructed based on researched information from many sources, including the Internet, existing Industry and Professional Skill standards, professional organizations and associations throughout the state and nation. The

competencies were loaded into the tables forming content-specific lists for each area. Each line-item was identified with a Likert Scale of 1 – 5 and a not applicable option.

ACETEA (2006) states that for each surveyed competency, all rankings were totaled and converted to percentages. Each percentage reflects the ratio of the number of participants identifying a particular Likert ranking option from all of those responding to the item. For each major discipline, the Top 10 percentages within the Likert 5 (highest) rating are depicted in various charts and graphs. In total, these provide a composite look at what business and industry needs and desires are of their new technical employees as a throughout the state of Alabama.

The following is a listing of the 28 soft skills that were evaluated on the basis of importance from the manufacturing industries and the technical instructors and administrators within the community and technical college system in Alabama:

1. Attendance – Reliably showing up for work as scheduled
2. Attitude – Verbal and nonverbal expression of feelings, thoughts, and general mindset towards all aspects
2. Behavior Modeling – Demonstrating positive workplace behaviors worthy of emulation
3. Ability to Take Direction / Constructive Feedback from Peers – Ability to follow rules and directions; demonstrating loyalty to leadership and management; capacity to accept work related analysis and evaluation from coworkers

5. Commitment to Quality/Taking Pride in Work – Taking pride in work and

striving for continuous improvement and perfection in the work process as well as in productivity

6. Communication Skills – Ability to clearly and accurately deliver information both orally and in writing
7. Conflict Management – Identifying and handling conflict in a tactful, fair and efficient manner; seeking resolution in a manner not to interfere with work performance while bringing about a harmonious atmosphere
8. Customer Service – Meeting and exceeding customer expectations while being polite and maintaining the integrity of company policies and guidelines
9. Decision Making – Effectively executing sound problem solving techniques to make proper decisions
10. Diversity – Recognizing and appreciating the value of the differences among people
11. Dress and Appearance (Professional Image) – Projecting a professional and positive external self image that represents the values and standards of an organization
12. Etiquette - Understanding and valuing the good manners prescribed by the professional work environment (including telephone, electronic, and in-person interaction)
13. Executive Coaching (Mentoring) – Using leadership abilities to strengthen individuals' self-confidence, personal effectiveness, productivity and

performance; utilizing individual talents to promote personal and professional growth; identifying subordinates' competencies and weaknesses

14. Interview Skills – Understanding the purposes, types, and stages of interviews; knowing the types of questions to expect and appropriate responses to interview questions
15. Job-Seeking Skills – Developing appropriate and effective career and employment strategies to obtain and retain employment
16. Leadership – Ability to effectively and efficiently influence others to accomplish tasks
17. Management Emotions (Emotional Control) – Understanding oneself and effectively managing feelings in a manner that maintains the integrity of the professional work environment
18. Money Matters (Financial Management) – Understanding basic personal financial planning techniques and workplace resource management understanding basic personal financial planning techniques and workplace resource management
19. Phone / Telecommunications Etiquette – Communicating effectively in a courteous and professional manner
20. Prioritizing / Organization – Identifying project tasks and determining efficient task importance, categorizing, and sequencing
21. Problem Solving – Understanding and applying a systematic approach to solve problems or to improve a process

22. Punctuality – Being on time and being prompt; being ready to work prior to shift start time
23. Sharing – Willingness to give of time, talent, expertise, equipment, materials, ideas, and other assistance to team members without regard to selfish concerns
24. Stress Management – Ability to exercise effective techniques to minimize the impact of workplace and personal stressors on work performance
25. Ability to be Task Oriented – Ability to maintain focus on assignments through completion or release from responsibility
26. Teamwork – Valuing team membership; understanding team member roles; understanding beneficial team behaviors
27. Time Management – Ability to establish and follow a schedule that promotes an effective use of time; understanding how effective use of time impacts an organization
28. Workplace Safety – Reducing and eliminating factors and work methods that risk or harm workers or their resources (ACETEA, 2006)

The statewide synopsis of the combined results found in the ACETEA 2006 Summary Report shows some interesting, but probably not surprising information from the soft skills survey as identified in (Table 2.1).

Table 2.1

ACETEA Soft Skills Survey Summary

	Statewide - Soft Skills	Highest Percentage by Likert Ranking		
1.	Attendance	91.84%	rated this item as a	5 on a 1-5 Likert Scale
2.	Attitude	51.02%	rated this item as a	5 on a 1-5 Likert Scale
3.	Behavior Modeling	50.00%	rated this item as a	5 on a 1-5 Likert Scale
4.	Can Take Direction / Constructive Feedback from Peers	66.33%	rated this item as a	5 on a 1-5 Likert Scale
5.	Commitment to Quality/Taking Pride in Work	81.63%	rated this item as a	5 on a 1-5 Likert Scale
6.	Communication Skills	46.94%	rated this item as a	4 on a 1-5 Likert Scale
7.	Conflict Management	41.84%	rated this item as a	4 on a 1-5 Likert Scale
8.	Customer Service	50.00%	rated this item as a	5 on a 1-5 Likert Scale
9.	Decision Making	60.20%	rated this item as a	5 on a 1-5 Likert Scale
10.	Diversity	34.69%	rated this item as a	4 on a 1-5 Likert Scale
11.	Dress and Appearance (Professional Image)	34.69%	rated this item as a	4 on a 1-5 Likert Scale
12.	Etiquette	41.84%	rated this item as a	4 on a 1-5 Likert Scale
13.	Executive Coaching (Mentoring)	31.63%	rated this item as a	4 on a 1-5 Likert Scale
14.	Interview Skills	33.67%	rated this item as a	4 on a 1-5 Likert Scale
15.	Job-Seeking Skills	41.84%	rated this item as a	4 on a 1-5 Likert Scale
16.	Leadership	38.78%	rated this item as a	4 on a 1-5 Likert Scale
17.	Managing Emotions (Emotional Control)	48.98%	rated this item as a	4 on a 1-5 Likert Scale
18.	Money Matters (Financial Management)	42.86%	rated this item as a	4 on a 1-5 Likert Scale
19.	Phone / Telecommunications Etiquette	35.71%	rated this item as a	5 on a 1-5 Likert Scale
20.	Prioritizing / Organization	38.78%	rated this item as a	5 on a 1-5 Likert Scale
21.	Problem Solving	72.45%	rated this item as a	5 on a 1-5 Likert Scale
22.	Punctuality	84.69%	rated this item as a	5 on a 1-5 Likert Scale
23.	Sharing	47.96%	rated this item as a	5 on a 1-5 Likert Scale
24.	Stress Management	48.98%	rated this item as a	4 on a 1-5 Likert Scale
25.	Task Oriented	50.00%	rated this item as a	5 on a 1-5 Likert Scale
26.	Teamwork	56.12%	rated this item as a	5 on a 1-5 Likert Scale
27.	Time Management	51.02%	rated this item as a	5 on a 1-5 Likert Scale
28.	Workplace Safety	81.63%	rated this item as a	5 on a 1-5 Likert Scale

Rated 5 Statewide
Top 5's Statewide

Of those competencies rated as most important for an employee to have knowledge of or be able to perform, “attendance” was the highest rated item in the state followed by punctuality and commitment to quality. Figure 2.1 depicts the statewide soft skills competencies and percentages for all receiving a rating of 5 on the Likert Scale. Among these, the highest of the fives are depicted in yellow.

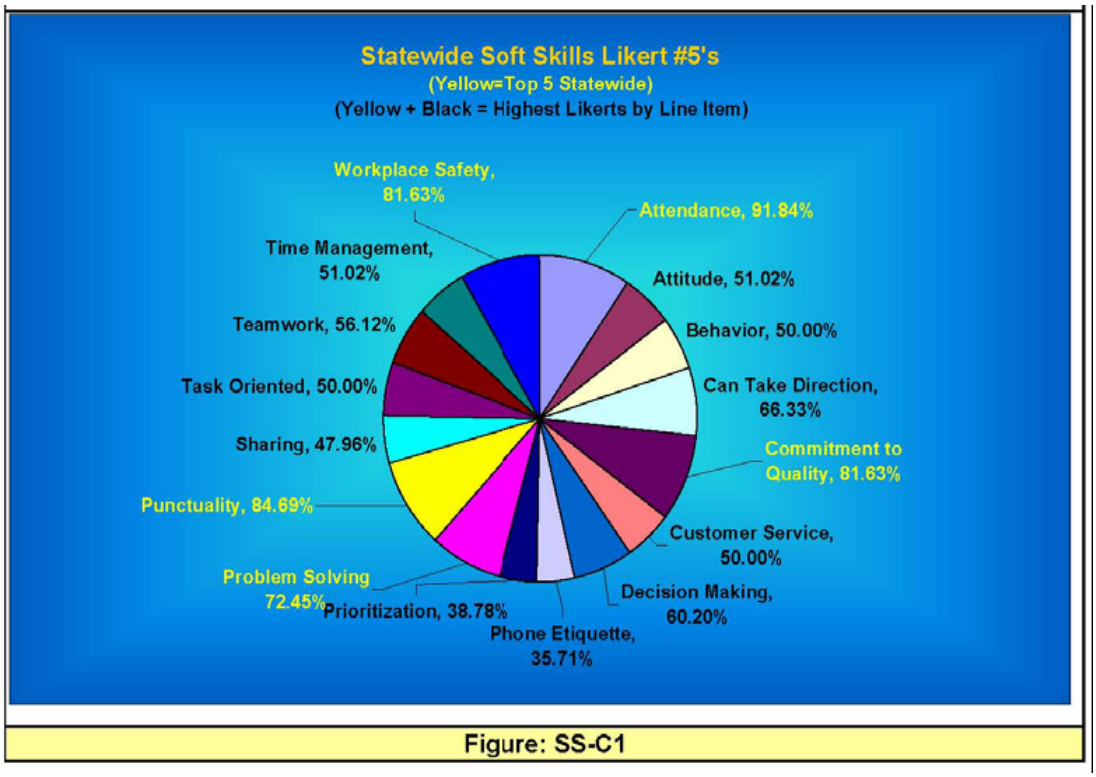

Figure 2.1 ACETEA – Statewide Soft Skills Likert #5's

Overall, the rankings in each area support and validate what research and industry and professional association and organizations had already suggested. Strong business and industry can be made stronger and sustained longer with qualified and capable employees who are qualified technically in their jobs and capable, from a soft skills perspective, of working among and interacting with other professional team members, supervisors, and subordinates (Sellers, 2006).

Attendance was by far the most import competency for someone to possess. A possible explanation is that attendance is critical to all industries. It does not matter what part of the state or region firms are located, nor does it matter what kind of work the industry performs, if workers are not present, production simply cannot and will not exist. See Appendix C for the full summary of the survey as it relates to soft skills.

CARCAM Study

The Consortium for Alabama Regional Center for Automotive Manufacturing (CARCAM) is comprised of faculty and administrators from five two-year colleges in Alabama's "Automotive Corridor." The five member institutions include: (1) Central Alabama Community College, (2) Gadsden State Community College, (3) Jefferson State Community College, (4) Trenholm State Technical College, and (5) Wallace State Community College. The colleges are centrally located around the major industry production centers.

> CARCAM's goals are to recruit, retain, and prepare students for careers in automotive manufacturing, provide professional development for instructors at secondary and postsecondary levels that enhance their skills and knowledge, support instructional programs that serve students and incumbent workers in automotive manufacturing technology, and promote a seamless transition for secondary education students to enter postsecondary programs offering automotive manufacturing technology programs (CARCAM, 2006, consortium members section, para. 1).

The new CARCAM project began September 1, 2006 with a $3 million grant from the National Science Foundation. Alabama's community and technical colleges are developing new state-of-the-art training and degree programs in automotive manufacturing that will use the latest technology, instructional methods, and hands-on

experience to meet workforce needs. CARCAM is bringing together industry leaders, five technical and community colleges, and the workforce development partners of The Alabama College System to develop training programs that will quickly produce the skilled workers needed to fuel the growth of the state's automotive industry (CARCAM, 2006). See Appendix D for a listing of all of the technical programs that are offered at each specific Alabama two-year institution.

CARCAM has established the curriculum for certificate and degree programs in auto manufacturing and shift existing technical training programs to meet precise industry needs. The effort focused on professional development for technical instructors. The training programs specifically targeted minority, female, and potential first-generation college populations.

CARCAM surveyed industry representatives from the manufacturing sector throughout the state of Alabama. The survey provided specific information as to the needs of the manufacturing industries in the state of Alabama. CARCAM produced a summary of its findings at the general meeting on February 10, 2006. The summary of the survey results identify competencies ranging from basic job skills to math skills to basic industrial electronics and robotic skills to welding and basic machine operations skills that are important to manufacturing in Alabama (CARCAM, 2006).

The study that CARCAM conducted included a wide range of skills sets including both basic skills and employment skills and technical skills. The skilled areas were divided into the following categories: (1) work ethics and basic job skills, (2) math, (3) electronics/industrial electronics, (4) machining operations, (5) welding and robotics, and

(6) working knowledge of automobiles. For the purpose of this study, the results from the survey that deal specifically with work ethics and basic job skills are the only sections used.

Respondents to the survey referred to the level of importance placed on each question by low, moderate, and high as their responses. CARCAM identified "Must Haves" as a combination of moderate and high responses that totaled in excess of 60% for that particular question. In the work ethics and basic job skills section the following were identified as "Must Haves" for entry-level employees:

1. Basic customer service skills
2. Communication skills
3. Orientation to production environment prior to employment
4. Written communication – completing forms properly
5. Electronic communication
6. Understanding of quality control – quality standards
7. Problem solving skills
8. Safety – knowledge of standard safety regulations
9. Cleanliness – personal and workplace
10. Organizational skills – prioritizing tasks
11. Attendance and punctuality
12. Attitude and behavior – verbal and non-verbal
13. Follow instructions – can take instructions and direct feedback constructively
14. Conflict management

15. Leadership skills

16. Teamwork skills

17. Introduction to lean manufacturing (CARCAM, 2006)

Overall, the rankings in each area support and validate what research has already suggested in other previous studies. Business and industry can benefit greatly with qualified and capable employees who are qualified technically in their jobs and have the basic skills and work ethics that industry desire (Sellers, 2006).

Of the six areas that were surveyed, work ethics and basic job skills were identified as the most important skills to possess by industry. These skills were labeled as "Must Haves" to be successful in manufacturing firms in Alabama. Industries placed significant importance on work ethics and basic job skills types of competencies. The scores reflected the following (Table 2.2):

Table 2.2

CARCAM Soft Skills "Must Haves"

Range	Percentage
High	61.70%
Moderate	31.69%
Low	6.61%

What these scores mean simply is that 93.39% of the industries surveyed agreed on the importance of basic skills and work ethics in the workplace. None of the other five areas surveyed showed this kind of consensus. For example, in looking at the welding and

robotics portion, only 58.67% of the industries agreed that welding and robotics skills were "Must Haves." For machining operations skills, only 55.74% of the industries agreed that machining operations skills were vitally important to their industry. The area surveyed that was the closest to the scores of basic skills and work ethics was the math section. Only 64.54% of the industries surveyed identified math as vitally important or "Must Haves" for their industry (CARCAM, 2006).

Alabama's Current Workforce

Alabama has one of the lowest unemployment rates in more than 50 years. Alabama had a low 4.2% unemployment rate in August 2005, with 90,217 unemployed. The state however has 586,000 people in the available labor pool category who are looking for better employment and includes 495,700 underemployed workers. Many of these people are willing to commute farther and longer, some for 20 or more minutes. In 2000, 78,200 Alabamians commuted out of state for work, compared to 41,500 commuters coming into Alabama from other states (ADECA: Alabama Department of Economic and Community Affairs, 2005).

The educational attainment in Alabama is low compared to the nation as a whole. Of the age 25 and over population, 75% of Alabamians are high schools graduates and 19% hold a bachelors degree or higher. The national average for high school graduates is 80% while the numbers that hold a bachelors degree or higher nationwide is 24% (ADECA: Alabama Department of Economic and Community Affairs, 2005).

The great news for Alabamians is that employment is growing faster than the labor force and population. By sector, the top five employers in the state are manufacturing, retail trade, health care and social assistance, educational services, and accommodation and food services. Manufacturing in Alabama continues to be one of the leading employers with the highest paying salaries. Only manufacturing had wages that were above the state averages for new hires and incumbent workers. The top five high-demand occupations are cashiers; retail salespersons; food preparation and serving workers; waiters and waitresses, and laborers. The top five fast-growing occupations are medical assistants; veterinary technologists; home health aides; medical records technicians; and network systems and data communications analysts (Table 2.3). The top 50 highest earning occupations are in the health, legal, management, engineering, computer, and science fields. The top 10 are all health occupations. Almost all of the high earning occupations require a minimum of a bachelor's degree (ADECA: Alabama Department of Economic and Community Affairs, 2005).

Table 2.3

Alabama Workforce Summary

Top 5 Employers	Top 5 High Demand Occupations	Top 5 Fastest Growing Occupations
Manufacturing	Cashier	Medical Assistants
Retail Trade	Retail Sales	Veterinary Technologists
Health Care	Food Preparation/Serving	Home Health Aids
Educational Services	Waiters/Waitresses	Medical Records Techs.
Food Service	Laborers	Network Systems Analysts

The research finds that the most relevant skills for all occupations whether high-demand or fast-growing is basic skills and work ethics (CARCAM, 2006). Identifying that basic skills are important for all occupations indicates a strong need for training in these skills. This study will identify some of the skills high-tech industries desire for potential entry-level employees.

SCANS Report

In 1990, the U.S. Department of Labor appointed a commission to determine the skills needed to be employed and to succeed in the world of work. The Report of The Secretary's Commission on Achieving Necessary Skills (SCANS), What Work Requires of Schools, was released in 1991. The Commission was charged with identifying the skills required for employment, proposing levels of proficiency in them, suggesting effective ways to evaluate them, and to disseminate its findings. The report did define what it called "workplace know-how" which comprised a set of five workplace competencies and three foundation elements. The workplace competencies included: (1) resources, (2) interpersonal skills, (3) information, (4) systems, and (5) technology. The foundation comprised of the following elements: (1) basic skills, (2) thinking skills, and (3) personal qualities. The SCANS report recommendations are as follows (Secretary's Commission on Achieving Necessary Skills, 1991):

Five Competencies

Resources: Identifies, organizes, plans, and allocates resources.

A. Time – selects goal-relevant activities, ranks them, allocates time, and prepares and follows schedules
B. Money – uses or prepares budgets, make forecasts, keeps records, and makes adjustments to meet objectives
C. Material and facilities – acquires, stores, allocates, and uses materials or space efficiently
D. Human resources – assesses skills and distributes work accordingly, evaluates performance and provides feedback

Interpersonal: Works with others

A. Participates as member of a team – contributes to group effort
B. Teaches others new skills
C. Serves clients/customers – works to satisfy customer's expectations
D. Exercises leadership – communicates ideas to justify position, persuades and convinces others, responsibly challenges existing procedures and policies

E. Negotiates – works toward agreements involving exchange of resources, resolves divergent interests

F. Works with diversity – works well with men and women from diverse backgrounds

Information: Acquires and uses information

A. Acquires and evaluates information

B. Organizes and maintains information

C. Interprets and communicates information

D. Uses computers to process information

Systems: Understands complex inter-relationships

A. Understands systems – knows how social, organizational, and technological systems work and operates effectively with them

B. Monitors and corrects performance – distinguishes trends, predicts impacts on system operations, diagnoses deviations in systems' performance and corrects malfunctions

C. Improves or designs systems – suggests modifications to existing systems and develops new or alternative systems to improve performance

Technology: Works with a variety of technologies

A. Selects technology – chooses procedures, tools or equipment including computers and related technologies

B. Applies technology to task – understands overall intent and proper procedures for setup and operation of equipment

C. Maintains and troubleshoots equipment – prevents, identifies, or solves problems with equipment, including computers and other technologies

A Three-Part Foundation

Basic skills: Reads, writes, performs arithmetic and mathematical operations, listens and speaks

A. Reading – locates, understands, and interprets written information in prose and in documents such as manuals, graphs, and schedules

B. Writing – communicates thoughts, ideas, information, and messages in writing, and creates documents such as letters, directions, manuals, reports, graphs, and flow charts

C. Arithmetic/mathematics – performs basic computations and approaches practical problems by choosing

appropriately from a variety of mathematical techniques

D. Listening – receives, attends to, interprets, and responds to verbal messages and other cues

E. Speaking – organizes ideas and communicates orally

Thinking skills: Thinks creatively, makes decisions, solves problems, visualizes, knows how to learn, and reasons

A. Creative thinking – generates new ideas

B. Decision making – specifies goals and constraints, generates alternatives, considers risks, and evaluates and chooses best alternative

C. Problem solving – recognizes problems and devises and implements plan of action

D. Visualizing things in the mind's eye – organizes, and processes symbols, pictures, graphs, objects, and other information

E. Knowledge of how to learn – uses efficient learning techniques to acquire and apply new knowledge and skills

F. Reasoning – discovers a rule or principle underlying the relationship between two or more objects and applies it when solving a problem

Personal qualities: Displays responsibility, self-esteem, sociability, self-management, and integrity and honesty

A. Responsibility – exerts a high level of effort and perseveres towards goal attainment
B. Self-esteem – believes in own self-worth and maintains a positive view of self
C. Sociability – demonstrates understanding, friendliness, adaptability, empathy, and politeness in group settings
D. Self-management – assesses self accurately, sets personal goals, monitors progress, and exhibits self-control
E. Integrity/honesty – chooses ethical course of action.

(U.S. Department of labor, June 1991, p. x-xi)

The U.S. Department of Labor Secretary's Commission on Achieving Necessary Skills (SCANS) 1992 report, Skills and Tasks for Jobs, identified the workplace know-how's as necessary for workers for the twenty-first century. These competencies are correlated with high wages. The competencies identified by the Secretary's Commission on Achieving Necessary Skills (SCANS) 1991 report, What Work Requires of Schools, was used as the basis of the survey instrument for this research.

Summary

The skills needed for today's emerging workforce have changed dramatically from those needed during the industrial age (Robinson, 2002). Employers demand prospective employees possess both general knowledge and specific employability skills such as effective communication, both orally and in writing, ability to think critically and logically, solve problems, and utilization of the computer. In addition, the related literature identifies good work ethics and attitudes such as: attendance and punctuality, being able to listen effectively, and possessing the ability to work in teams as some of the most important workplace skills that employees can posses. As identified in the ACETEA and CARCAM studies, soft skills and basic work skills such as customer service, communication skills, attendance, attitude, and problem solving were overwhelmingly rated by industries as the most important skills that individuals should possess if they are to be employed in the high-tech sector.

The Perkins Act is certainly identified as one of the most important governmental influences on vocational/technical education. It has had the greatest impact on successful funding sources of federal monies in regards to vocational/technical education. It continues today to serve as a catalyst heightening the awareness for vocational/technical education and serving as the main funding source.

The Alabama Department of Economic and Community Affairs (ADECA) identified Alabama as having the lowest unemployment rate in more than 50 years. However, the educational attainment for Alabamians is low when compared to that of the nation. Manufacturing continues to be one of the leading employers with the highest

paying salaries. With Alabama quickly becoming the automotive manufacturing mecca of the South, high-tech manufacturing jobs are quickly on the rise. It is vitally important for our community and technical colleges in Alabama to understand exactly what industries want and need in prospective employees.

This study will seek to identify the workplace skills that are needed in and desired by Alabama's high-tech industries. In addition, it will identify the perceptions that college personnel have in regards to the importance of workplace skills in the high-tech industry. If these skills are not in synch with the skills and abilities that industries are looking for, then there is a mismatch in what is available and what employers really need. This study will provide information that will assist community colleges in designing an integrated curriculum that will prepare students to meet the demands of employers and the skills they require to work in Alabama's high-tech industries.

CHAPTER III

METHODOLOGY

The literature review indicated a need for further study of the workplace readiness skills desired by industries and perceived by two-year college personnel in Alabama. Many firms are finding that the employees that they hire do not possess the basic technical, academic, and life skills that they need for their companies. Colleges are searching for methods to integrate academics with technical skills training.

This study was an attempt to compare the perceptions of employers in high-tech industries with those persons responsible for teaching individuals to enter this highly technologically advanced world of work. This chapter describes the (a) research design, (b) population and sample, (c) procedures, (d) survey instrument (e) data gathering procedures, and (f) data analysis.

Research Design

The first step in the research design process was to identify the subjects to be studied. Instructors and administrators (educator group) of technical programs in the two-year college system and supervisors in high-tech industries (industry group) of Alabama were surveyed. The survey instrument was based on the 36 components of the (SCANS Report, 1992) in which 36 traits were identified by a commission appointed by

the U.S. Department of Labor. These 36 competencies were deemed necessary for workers of the twenty-first century to possess in order to be able to gain and sustain

employment. In addition to the 36 components of the SCANS Report, 11 additional questions were added that deal with the actual integration of workplace skills into the curricula of technical programs in Alabama. The survey instrument had a total of 47 questions with Likert Scale responses.

Population and Sample

The purpose of this chapter was to describe how this study will seek to identify the potential workplace skills needed to prepare the technical program graduates to prepare them for today's workforce. The three target populations included technical instructors, administrators responsible for technical programs, and supervisors of selected high-tech industries in Alabama.

One target population consisted of technical instructors who were identified and verified in a 2006 personnel report generated by the Alabama College System (ACS). Two-hundred ninety four instructors were identified as the population by teaching technical specific courses such as machine shop, welding, electronics, drafting and design, computer science, construction, automotive, and engineering related courses. These instructors represent a wide range of technical courses and programs that are taught in Alabama's two-year college system (Appendices B & D).

The second population consisted of administrators who had oversight of technical programs at their respective colleges. The college administrator population included 28 administrators who held positions as vice-presidents, deans, associate deans, assistant deans, division chairs, program directors, and directors (Appendices B & D). If a college employee is both an instructor and administrator such as a Division Chair, the employee will be included in the instructor population. Because of the low numbers of administrators, instructors and administrators were combined to form one group known as the educator group to compare with the industry group. As a result, the educator group had a total population of 322. Of the 322 educators 12 email addresses were invalid; therefore, the population sample only included those 310 educators with valid email addresses.

The population for industry supervisors was selected from the Alabama Industrial Directory (Alabama Development Office, 2007) which lists 6207 industrial companies. Of those industrial firms, 625 are identified and coded by the Alabama Department of Industrial Relations as high-tech industries. This study focused only on the high-tech industries in Alabama. Of the 625 high-tech companies listed, only 279 provided email addresses for their respective company and of these, 76 email addresses were invalid. As a result, the population sample only included those 203 high-tech companies with valid email addresses.

A web-based sample analysis tool was used to estimate the accuracy of the survey results (www.raosoft.com). The calculated error level with a sample size of 162 educators from a population of 310 is 7 percent. Respectively, with a sample size of 62

industry supervisors from a population of 203 high-tech industries in Alabama the error level is calculated at 13.67 percent for the industry group.

Procedures

The procedures of this study involved the following steps: identifying and defining the problem, reviewing the related literature, identifying the hypothesis to be tested, identifying the appropriate survey instrument, and getting approval by the IRB Board at Mississippi State University before administering the pilot study. Once the approval was given to use the survey instrument, a sample population was identified for the pilot study. The sample for the pilot study included 40 technical faculties and one administrator from a career technical center in Alabama. The educators involved in the pilot study were not used in the actual research.

It is important to try out the survey instrument on a few subjects before initiating the full blown study. This helped the researcher determine if everything worked properly and to find out if the pilot group had any suggestions. It provided an opportunity to assess the appropriateness and practicality of the data collection instrument. Any problems with the survey instrument could have been solved at this point.

It is important to validate and ensure the reliability of the survey instrument. Therefore, a pilot study was used to attempt to ensure reliability and validity. The survey instrument was sent to 41 educators and 17 responded. Microsoft Excel was used to analyze the data gathered from the pilot study surveys. A Cronbach coefficient alpha correlation analysis (Ary, 1996) was applied to test the reliability of the survey instrument which calculated a coefficient of .90 which indicated 90% reliability factor

(University of Connecticut, n.d.). The educators from the pilot were asked to review the surveys and none had any suggestions or comments on how to modify the instruments. Several of the participants in the pilot study requested results from the study when completed.

The presidents from each of the 27 institutions were sent an email requesting permission to administer the surveys to the appropriate technical faculty and administrators. With the president's approval, an email was sent to the chief academic officer at each institution to get an updated email listing of all technical faculty and administrators responsible for technical programs. The list of technical instructors and administrators from each college was compiled and loaded into an Excel spreadsheet.

The industry group was selected from the 2006 Alabama Industrial Directory. Of the more than 6000 companies, only 625 were identified as high-tech. This group of 625 high-tech companies was reduced since only 279 had an email listing. To ensure that the participants were representative of the population, the researcher analyzed three categories within the Alabama Industrial Directory 2007. The categories included: SIC codes, numbers of employees, and county location. In looking at SIC codes, the industry group had 216 different SIC codes represented from a total population of 625 companies. The sample group had 135 different SIC codes represented. In analyzing company size, the sample group represented companies in all categories except 3 groups which include: 2001-2500 employees, 2501-3000 employees, and over 4000 employee category. The population group only had three companies that met these criteria. Finally, when the geographic region was analyzed, the sample population represented 47 of 67 counties in

Alabama while the population represented 55 counties from a total of 67 counties in Alabama. Based on this assessment, it was determined that the sample identified was representative of the population. This final list of 279 industry supervisors was compiled and loaded into an Excel spreadsheet.

Survey Instrument

This study included two survey instruments (Appendix I & L) to provide answers to the research questions. One survey was designed for the technical instructors and administrators in the Alabama College System. The other survey was designed for supervisors in the high-tech industries in Alabama. Notification of the surveys was sent to the subjects via email (Appendix G & J). The survey itself was accessible on the Internet from (Survey Monkey, Inc. n.d.). This website was maintained by Survey Monkey, Inc and the e-survey results were instantly accessible upon the completion of each respondent. The survey contained an informed consent form stating the purpose of the study, assured the right to confidentiality, ensured that the survey was completely voluntary, and provided the contact information for Mississippi State University and the research student (Appendix H & K).

The surveys contained 47 descriptive questions using Likert Scale responses for the questionnaire. The Likert Scale, named after Renis Likert, is a type of psychometric response scale that is the most widely used scale in survey research (Likert, 1932). When responding to a Likert questionnaire item, respondents specified their level of agreement to each statement. For questions 1-36, a five point scale was used in this study (1) Most

important, (2) Somewhat important, (3) No opinion (4) Not very important, and (5) Least important. The second portion of the survey which included questions 37-47 also used a five point scale but the responses varied slightly. The following was used: (1) Strongly agree, (2) Slightly agree, (3) No opinion, (4) Slightly disagree, and (5) Strongly disagree. The respondents responded with varying degrees of intensity on a scale ranging between extremes. A Likert Scale was selected because a large number of variables can be measured in a short period of time and the data collected in this method are reliable and the bias of the researcher is eliminated (Ary, 1996).

Data Gathering Procedures

The surveys were conducted by sending emails to the selected instructors, administrators, and supervisors. The surveys were accessible on the Internet from www.surveymonkey.com. This e-survey company monitored all survey activity and the data was collected, stored, and retrievable instantly upon completion of each respondent's e-survey. A thank you message was instantly sent to each respondent upon completion of the e-survey. A follow-up email was sent to each participant who had not responded to the e-survey one week after the date of receipt of the original email. If the participant did not respond to the second email, a third, fourth and final email was sent to encourage the participant to complete the e-survey.

Data Analysis

The data gathered were analyzed in relation to the following questions:

1. What workplace skills are desired most by employers in the high-tech industries?
2. What workplace skills do college personnel perceive as desirable by employers in the high-tech industries?
3. Is there general agreement among employers and college personnel of the importance of workplace skills that should be included in the curricula of two-year technical programs in community and technical colleges in Alabama?
4. Do college personnel and employers in this study believe that the two-year colleges in Alabama play a role in the preparation of graduates for the workforce?

The data from the surveys were tabulated and treated collectively to avoid the possibility of identifying any particular industry, college, or individual. The following hypothesis, stated in the null form, was tested in this study using the t test analysis to identify whether significant difference exists within the mean values of the two groups:

1. There is no significant difference between the perceptions of college personnel and supervisors in high-tech industries regarding the importance of teaching workplace skills in the Two-Year College System in Alabama?

The calculated values were compared to the appropriate critical values determined by the number of individual responses comprised in the analysis. The level of significance was set at .01 to reduce the possible rate of error. The null hypothesis was

rejected for 14 of the 36 components which indicated that the calculated t test statistic was smaller than the negative of the critical value or larger than the positive of the critical value used for comparison. However, there was insufficient evidence to support the null hypothesis for 22 of the 36 components. Rejection of the null hypothesis indicates that significant differences are found (Hurlburt, 2003).

CHAPTER IV

RESULTS

Introduction

This study examined the perceptions of community college technical faculty and administrators and supervisors of high-tech companies in Alabama with regards to the workplace skills and competencies that need to be taught and included in the curricula of technical programs in the Two-Year College System in Alabama. This chapter presents the study results based on the findings from the surveys and statistical analysis. After the data was collected, Microsoft Excel (2003) was utilized to statistically analyze the data to show commonality and differences between the educator group and the industry group in regards to the importance of workplace readiness skills for employment in the high-tech industry.

Participants

An emailed survey (Appendix I) was sent to 294 instructors and 28 administrators of technical programs in the two-year college system of Alabama and 279 supervisors in high-tech industries (Appendix L) from Alabama using www.surveymonkey.com. Of the 322 educators in the total population, 12 email addresses were invalid. As a result, the population sample only included those 310 educators with valid email addresses. Of the

279 industry supervisors, 76 email addresses were invalid. As a result, the population sample only included those 203 companies with valid email addresses from a total population of 625 high-tech companies in Alabama.

The instructor group and the administrator group were combined to form one educator group because of the small sample size of administrators. From the initial survey 69 educators and 27 industry supervisors responded, yielding 22% and 13%, respectively, for an overall return rate of 19%. One week later, a second email was sent to the groups resulting in 53 educators and 15 industry supervisors responses, yielding 39% and 21% composite totals, respectively, for an overall return rate of 32%. Several telephone calls were made to the administrators at the colleges as well as the companies to try to encourage participation in the study. One week later, a third email was sent to the groups resulting in 35 educators and 14 industry supervisors responses, yielding 51% and 28% composite totals, respectively, for an overall return rate of 42%. One week later, a fourth and final email was sent to the groups resulting in 4 educators and 6 industry supervisors responses, yielding 52% and 31% composite totals, respectively, for an overall return rate of 43%. A total of 161 responses from a sample of 310 were finally received from administrators for a return rate of 52%, while 62 supervisors responded out of a sample of 203 for a total of 31% response rate.

Summary of Survey Responses

The survey instruments were designed to determine the importance assigned by participants to specific workplace readiness skills (Appendix I & L). There are a total of

48 questions on the survey instrument. Question one pertained to whether or not the participant wanted to participate in the study. Therefore, question one will be eliminated from the statistical analysis discussed hereafter. For simplification, the questions were renumbered from 1 to 47. The first 36 questions pertain specifically to the workplace skills identified in the 1991 SCANS Report. Questions 37 through 47 deal with the actual integration of workplace skills into the curricula of the two-year colleges in Alabama. As a result, questions 37 through 47 were analyzed separately from the first 36 questions.

Of the 36 items listed on the questionnaire, the educators and the industry supervisors rated integrity and honesty as the most important trait for a worker to posses. In addition, both the educators and industry supervisors ranked serves clients and/or customers as the second most important workplace skill for a worker to posses.

The educator group rated listening skills as the third most important workplace skill while the industry group rated the trait as fifth on the list of importance. The industry supervisors rated responsibility as the third most important workplace skill to possess while the educator group ranked it fifth. When analyzing the top ten lists for both the educators and industry supervisors, both groups chose 8 of the same workplace skills out of 10. The only differences were the educator group had knowing how to learn and reading skills on the top 10 list while the industry group had self-management and time management on their top 10 list. Tables 4.1 and 4.2 provide a summary of the rank order of the workplace readiness skills by educators and industry supervisors.

Table 4.1

Educator Group Ranking Workplace Skills from Most Important to Least Important

Ranking	Question	Workplace Readiness Skill
1	36	Integrity/honesty
2	7	Serves clients/customers
3	24	Listening skills
4	28	Problem solving
5	32	Responsibility
6	13	Interprets and communicates information
7	5	Team member
8	11	Acquires and evaluates information
9	30	Knowing how to learn
10	21	Reading skills
11	19	Applies technology to tasks
12	35	Self-management
13	33	Self-esteem
14	10	Works well in diverse environment
15	12	Organizes and maintains information
16	23	Arithmetic/mathematics skills
17	31	Reasoning ability
18	27	Decision making ability
19	34	Sociability
20	1	Time management
21	3	Materials and facilities
22	25	Speaking
23	6	Teaches others new skills
24	14	Use of computers
25	18	Selects technology
26	20	Maintains and troubleshoots equipment
27	22	Writing skills
28	4	Human resources
29	26	Creative thinking skills
30	29	See's things in the minds eye
31	15	Understands how systems work and operate
32	2	Money management skills
33	8	Exercises leadership
34	16	Monitors and corrects performance
35	9	Negotiates
36	17	Improves or designs systems

Table 4.2

Industry Group Ranking Workplace Skills from Most Important to Least Important

Ranking	Question	Workplace Readiness Skill
1	36	Integrity/honesty
2	7	Serves clients/customers
3	32	Responsibility
4	5	Team member
5	24	Listening skills
6	28	Problem solving
7	13	Interprets and communicates information
8	35	Self-management
9	1	Time management
10	11	Acquires and evaluates information
11	25	Speaking
12	19	Applies technology to tasks
13	10	Works well in diverse environment
14	8	Exercises leadership
15	33	Self-esteem
16	34	Sociability
17	30	Knowing how to learn
18	12	Organizes and maintains information
19	4	Human resources
20	2	Money management skills
21	26	Creative thinking skills
22	31	Reasoning ability
23	21	Reading skills
24	27	Decision making ability
25	23	Arithmetic/mathematics skills
26	14	Use of computers
27	6	Teaches others new skills
28	22	Writing skills
29	9	Negotiates
30	3	Materials and facilities
31	16	Monitors and corrects performance
32	29	See's things in the minds eye
33	15	Understands how systems works and operate
34	17	Improves or designs systems
35	20	Maintains and troubleshoots equipment
36	18	Selects technology

t Test Analysis of Hypothesis

The null hypothesis was analyzed to test for any significant difference using the t test analysis with unequal variances. The purpose of this statistical analysis was to determine whether there were significant differences in the perceptions of educators of technical programs in Alabama's Two Year College System compared to supervisors in high-tech industries in Alabama regarding the importance of teaching workplace readiness skills in the curricula of community colleges in Alabama. The hypothesis was evaluated at the .01 level to reduce the risk of error. The hypothesis is stated as follows:

There is no significant difference between the perceptions of college personnel and supervisors in high-tech industries regarding the importance of teaching workplace skills in the Two-Year College System in Alabama.

The t test was used to test for differences between the behavioral group means. Questions 1 through 36 were used to test this hypothesis (Appendix I & L). A summary of the t test analysis of the null hypothesis is summarized in Table 4.3.

Table 4.3

Summary of t Test Analysis of Null Hypothesis

Workplace Readiness Skill	Educator Mean	Supervisor Mean	t Test Statistic	p value
1. Time management	1.5072	1.5517	-0.4372	0.6628
2. Money management skills	1.6906	1.7759	-0.7455	0.4574
3. Materials and facilities	1.5180	1.9483	*-3.3777	0.0010
4. Human resources	1.6377	1.7679	1.8159	0.0714
5. Team member	1.3261	1.2586	0.8421	0.4013
6. Teaches others new skills	1.5515	1.8070	-2.3575	0.0205
7. Services clients/customers	1.1985	1.2069	-0.1014	0.9194
8. Exercises leadership	1.6934	1.6724	0.1742	0.8620
9. Negotiates	1.7956	1.9138	-0.886	0.3778
10. Works well in diverse environment	1.4058	1.6429	-2.067	0.0415
11. Acquires and evaluates information	1.3333	1.5818	*-2.9673	0.0038
12. Organizes and maintains information	1.4088	1.7273	*-2.7412	0.0075
13. Interprets and communicates information	1.2555	1.4545	-1.9565	0.0540
14. Use of computers	1.5926	1.8036	-1.6643	0.0996
15. Understands how systems works and operate	1.6812	1.9821	*-3.0659	0.0026
16. Monitors and corrects performance	1.7868	1.9643	-1.4826	0.1410
17. Improves or designs systems	1.9167	2.2364	-2.2297	0.0282
18. Selects technology	1.6058	2.5091	*-5.7733	.0000017
19. Applies technology to tasks	1.3577	1.6000	*-2.4188	0.0176
20. Maintains and troubleshoots equipment	1.6336	2.3636	*-4.3645	.000039
21. Reading skills	1.3485	1.8000	*-3.6142	0.0005
22. Writing skills	1.6364	1.8545	-1.5653	0.1209
23. Arithmetic/mathematics skills	1.4580	1.8000	*-2.4760	0.0154
24. Listening skills	1.2462	1.2909	-0.4982	0.6197
25. Speaking	1.5426	1.5818	-0.3897	0.6975
26. Creative thinking skills	1.6434	1.7818	-1.3543	0.1785
27. Decision making ability	1.4846	1.8000	*-2.7223	0.0076
28. Problem solving	1.2481	1.3704	-1.3315	0.1865
29. See's things in the minds eye	1.6589	1.9818	*-2.7352	0.0073
30. Knowing how to learn	1.3438	1.7259	*-3.8295	0.0002
31. Reasoning ability	1.4609	1.7925	*-3.1009	0.0025
32. Responsibility	1.2520	1.2075	0.5791	0.5637
33. Self-esteem	1.3876	1.6923	*-2.3237	0.0231
34. Sociability	1.4961	1.6981	-1.9918	0.0494
35. Self-management	1.3750	1.5094	-1.2605	0.2112
36. Integrity/honesty	1.0310	1.0943	-1.2412	0.2192

* Reject the null hypothesis

There was insufficient evidence to support the null hypothesis for 22 of the 36 workplace skills (Table 4.3). The research concludes that there is an insignificant difference in the perceptions of the participants among the educator group and the industry supervisor group regarding the importance of the following workplace skills: (1) possessing time management skills, (2) possessing money management skills, (4) possessing human resources skills, (5) being a team member, (6) teaching others new skills, (7) serving clients/customers, (8) exercising leadership, (9) negotiating, (10) working well in diverse environments, (13) interpreting and communicating information, (14) using computers, (16) monitoring and correcting performance, (17) improving or designing systems, (22) writing skills, (24) listening skills, (25) speaking, (26) being a creative thinker, (28) being a problem solver, (32) being responsible, (34) being sociable, (35) being a self-manager, (36) and being a person of integrity/honesty. As a result, the research failed to reject the null hypothesis for these 22 workplace readiness skills.

However, for 14 of the 36 workplace readiness skills, there was sufficient evidence to reject the null hypothesis. The educator group disagreed with the industry supervisor group regarding the importance of including the following workplace skills in the curricula of the two-year colleges in Alabama: (3) materials and facilities, (11) acquires and evaluates information, (12) organizes and maintains information, (15) understands how systems work and operate, (18) selects technology, (19) applies technology to tasks, (20) maintains and troubleshoots equipment, (21) reading skills, (23) arithmetic/mathematical skills, (27) decision making ability, (29) see's things in the minds eye, (30) knowing how to learn, (31) reasoning ability, and (33) self-esteem.

Supervisors in the high-tech industries in Alabama indicated that several workplace skills were not as important to their operation as the educator group thought they were. The skills that were perceived as less important by the industry supervisors were:

1. Materials and facilities – acquire, store, allocate, and uses materials or space efficiently.
2. Acquires and evaluates information.
3. Organizes and maintains information.
4. Understands systems – knows how social, organizational, and technological systems work and operates effectively with them.
5. Selects technology – chooses procedures, tools or equipment including computers and related technologies.
6. Maintains and troubleshoots equipment – prevents, identifies, or solves problems with equipment, including computers and other technologies.
7. Reads well – locates, understands, and interprets written information in prose and in documents such as manuals, graphs, and schedules.
8. Makes good decisions – specifies goals and constraints, generates alternatives, considers risks, and evaluates and chooses best alternatives.
9. Sees things in the mind's eye – organizes and processes symbols, pictures, graphs, objects, and other information.

10. Knows how to learn – uses efficient learning techniques to acquire and apply new knowledge and skills.
11. Reasoning – discovers a rule of principle underlying the relationship between two or more objects and applies it when solving a problem.
12. Applies technology to tasks – understands overall intent and proper procedures for setup and operation of equipment.
13. Performs Arithmetic/mathematics – performs basic computations and approaches practical problems by choosing appropriately from a variety of mathematical techniques.
14. Possesses Self-esteem – believes in own self-worth and maintains a positive view of self.

When the researcher analyzed the list of 14 competencies that were not as important to supervisors as educators thought they were, it became evident that there were some significant findings in the data. In organizing the skills identified, the researcher categorized them into three groups: 1) work ethics/basic work skills, 2) academic skills, and 3) technical skills. Educators perceived technical skills to be much more important to high-tech companies than industry supervisors did (Table 4.4). Seven of the 14 competencies that the educator group perceived more important to the industry group were related to technical skills and academics. Educators felt much stronger about their perceptions of the importance of the technical skills and academic skills to the industry group as shown in t test statistic (Table 4.3). Industry supervisors placed much

more importance on the basic workplace skills and work ethics than they did academic and technical skills.

Table 4.4

Competencies Perceived Less Important to Industry Group

Work Ethics/Basic Work Skills	▪ Self-esteem ▪ Decision making ▪ Sees things in the minds eye ▪ Organizes and maintains information ▪ Acquires and evaluates information ▪ Reasoning ability ▪ Knowing how to learn
Academic Skills	▪ Arithmetic skills ▪ Reading skills
Technical Skills	▪ Applies technology ▪ Understands how systems work ▪ Materials and facilities ▪ Maintains and troubleshoots equipment ▪ Selects technology

For questions 37-47 comparisons were made as to the perceptions of conditions required for the integration of workplace readiness skills into the curricula. The data revealed that there is general agreement from the educators and supervisors in regards to the integration of workplace readiness skills into the curricula on 8 of the 11 measures (Tables 4.5, & 4.6). The responses in which there were no significant differences found include the following:

1. Financial resources are available to achieve integration of workplace skills.
2. Opportunities are available for professional development on integration of workplace skills.
3. Community colleges should teach workplace readiness skills in the curricula

4. Workplace readiness skills must be integrated into the curricula for the success of students.
5. Workplace readiness skills can best be integrated by making academic support courses more technically relevant.
6. Workplace readiness skills can best be integrated by modifying both technical and academic courses.
7. Workplace readiness skills can best be integrated by creating "skills/tech" centers dedicated solely to meeting business and industries training requirements.
8. Workplace readiness skills can best be integrated through cooperative work/learning experiences.

Table 4.5

Educator Group Ranking Integration of Workplace Readiness into Curricula

Ranking	Question	Workplace Readiness Skill	Mean	Std. Dev.
1	42	Integration of workplace skills into curricula	1.3000	0.6306
2	40	Tech. faculty support of integration of skills	1.3511	0.6192
3	37	Physical resources	1.4646	0.8047
4	45	Making academic courses more relevant	1.5547	0.8767
5	41	Admin. Support of integrating workplace skills	1.6107	0.9653
6	38	Financial resources for integration into curricula	1.6822	0.9681
7	44	Combine technical and academic curriculum	1.7077	1.0376
8	39	Prof. dev. for integration of workplace skills	1.7087	0.9521
9	46	Modify both academic and technical programs	1.9389	1.1419
10	47	Creating "skills tech" centers	2.3333	1.3010
11	43	Incorporating academics into technical curriculum	2.6615	1.4007

Table 4.6

Industry Group Ranking Integration of Workplace Readiness into Curricula

Ranking	Question	Workplace Readiness Skill	Mean	Std. Dev.
1	42	Integration of workplace skills into curricula	1.2941	0.2518
2	41	Admin. Support of integrating workplace skills	1.4118	0.5671
3	43	Incorporating academics into technical curriculum	1.5800	0.7384
4	45	Making academic courses more relevant	1.8627	0.6408
5	44	Combine technical and academic curriculum	1.8800	1.0873
6	47	Creating "skills tech" centers	1.8824	1.1059
7	37	Physical resources	1.9245	0.4942
8	38	Financial resources for integration into curricula	1.9623	0.6909
9	39	Prof. dev. for integration of workplace skills	2.0000	1.2000
10	46	Modify both academic and technical programs	2.2653	1.3240
11	40	Tech. faculty support of integration of skills	2.4400	1.6800

Both educators and industry supervisors agreed that the integration of workplace skills into the curricula was of utmost importance (Table 4.7). The supervisors indicated by their responses that they did not feel like the physical resources were available at their places of business to achieve the integration of workplace readiness skills. The educators on the other hand did feel as though they had the physical resources to achieve the integration of these skills.

For question 40, the industry group did not feel as though they should teach workplace readiness skills at their place of business. They agreed that these skills should be taught by the community college. The supervisors ranked this least important on the questions regarding the integration of these skills into the curricula. Educators, however, felt as though industry played a vital role in the teaching and integrating of workplace

skills and thus ranked this as second most important from the questions regarding the integration of these skills.

In regards to the response for question 43, industry supervisors felt passionate about combining technical and academic instruction to enhance academic competencies in technical programs and to best integrate workplace readiness skills. Educators did not like the idea of combining technical and academic instruction. The primary finding from this group of questions is that both educators and industry supervisors believe that it is important to integrate workplace skills into the curricula in our technical programs.

Table 4.7

Summary of t Test Analysis of Integrating Workplace Skills into Curricula

Workplace Readiness Skill	Educator Mean	Supervisor Mean	t test statistic	p value
37. Physical resources	1.4646	1.9245	*-3.8299	0.0002
38. Financial resources for integration into curricula	1.6822	1.9623	-1.9658	0.0518
39. Prof. dev. for integration of workplace skills	1.7087	2.0000	-1.6636	0.1000
40. Tech. faculty support of integration of skills	1.3511	2.4400	*-5.6972	4.481E7
41. Admin. Support of integrating workplace skills	1.6107	1.4118	1.4732	0.1434
42. Integration of workplace skills into curricula	1.3000	1.2941	0.0658	0.9476
43. Incorporating academics into technical curriculum	2.6615	1.5800	*6.2589	4.2530E9
44. Combine technical and academic curriculum	1.7077	1.8800	-0.9943	0.3227
45. Making academic courses more relevant	1.5547	1.8627	-2.2606	0.0259
46. Modify both academic and technical programs	1.9389	2.2653	-1.6973	0.0932
47. Creating "skills tech" centers	2.3333	1.8824	2.4173	0.0172

* Reject the null hypothesis

CHAPTER V

CONCLUSION

Summary of Findings

This study examined the perceptions of administrators and technical faculty from Alabama's Two-Year College System compared to the perceptions of supervisors from the high-tech industries in Alabama in regards to the importance of workplace skills needed for employment in high-tech manufacturing firms. Data from both groups were gathered through a survey instrument that contained 36 workplace readiness skills as identified in the 1991 SCANS Report. An additional 11 questions were added (questions 37 – 47) that deal with the actual integration of workplace skills into the curricula of the two-year colleges in Alabama. The data were analyzed using Microsoft Excel and the hypothesis was tested at the .01 level of significance using the t test. This chapter provides a summary of the findings, conclusions, and recommendations resulting from this study.

The findings indicate that high-tech industrial firms are looking for people who have basic workplace skills and work ethics. These firms place greater importance on soft skills than on technical skills and academic competencies. Educators perceived that industry supervisors placed greater emphasis on technical skills for an entry-level

employee and less on the soft skills. This research supports the concept that that there is a disconnect between the business and industry community and our educators.

The SCANS Report, 1991 called for a prescribed set of competencies in order to be successful in the twenty first century. It is the responsibility of our institutions, both secondary and postsecondary, to adhere to that prescribed set of standards and implement them into the curricula of Alabama's two-year college technical programs. The two-year college system in Alabama should be interested in providing students with these skills and competencies. After all, these are the places of business in which technical college graduates find employment. Therefore, students should be provided relevant curriculum that will prepare them for jobs in this high-tech world of work. This study revealed that industries expect prospective employees to possess specific employability skills, including but not limited to, the ability communicate orally and in writing, critical thinking, being able to listen, being able to work in teams, being able to manage time, and most importantly being an honest person of integrity.

This study attempted to assist colleges in better understanding the needs of the high-tech industries. The research produced some significant findings in which evidence shows that Alabama's technical programs within the two-year college system should place more emphasis on the identified workplace skills that were perceived important to the high-tech industries in Alabama. The research concludes that there was insufficient evidence to support the null hypothesis for 22 of the 36 workplace skills (Table 4.3). The research, however, indicates that there is a significant difference in the perceptions of the

participants between the educator group and the industry group regarding the importance of 14 of the 36 workplace readiness skills (Table 4.3).

Of the 36 items listed on the questionnaire, the educators and the industry supervisors rated integrity and honesty as the most important trait for a worker to posses while serves clients and/or customers was the second most important workplace skill for a worker to posses.

Conclusions

The skills needed for our emerging workforce have changed dramatically from those needed during the industrial age (Robinson, 2002). As identified in the research, employers demand prospective employees possess both general knowledge and specific employability skills such as effective communication, both orally and in writing, ability to think critically and logically, solve problems, attendance and punctuality, being able to listen effectively, and possessing the ability to work in teams as some of the most important workplace skills that employees can possess. Most importantly, educators and industry supervisors indicated that honesty and integrity was the most important workplace skill for an employee to possess while serving the customer was ranked as the second most important skill for a worker to possess. As identified in the research conducted, these soft skills were overwhelmingly rated by industries as the most important skills that individuals should possess if they are to be successfully employed in the high-tech sector.

With Alabama having the lowest unemployment rate in more than 50 years, it is imperative that the students coming out of Alabama's technical programs be equipped with not only the technical knowledge, but most importantly, the workplace skills that industries demand and expect. Manufacturing continues to be one of Alabama's leading employers with the highest paying salaries. With Alabama quickly becoming the automotive manufacturing Mecca of the South, high-tech manufacturing jobs are quickly on the rise. It is vitally important for our community and technical colleges in Alabama to understand exactly what industries want and need in prospective employees.

This study identified the workplace skills that are needed and desired by Alabama's high-tech industries and the perceptions that college personnel have in regards to the importance of those workplace skills in the high-tech industry. The major initiatives (Appendix E) and the performance measures and standards (Appendix F) indicate that colleges must ensure that students attain the skills and knowledge they will need in the future workplace and for continued learning. If educators are not in synch with the skills and abilities that industries are looking for, there is a mismatch in what is available and what employers really need.

One of the reasons that industries may be placing such high importance on workplace ethics and basic skills is the very low unemployment in Alabama. This state is experiencing some of the lowest unemployment in more than 50 years. As a result, industries may be forced to hire a less than desirable employee who ordinarily would not meet the standards set forth by company policy. Since unemployment has been low for several years now, industry supervisors may have seen a decline in basic employment

skills as well as soft skills because of having to hire any warm body that walks through the door.

This research has revealed some beneficial data that will assist community colleges in designing an integrated curriculum that will prepare students to meet the demands of employers and the skills they require to work in Alabama's high-tech industries. The researcher supports the data as reported. The researcher concludes that in order to be competitive in today's economy, a prospective employee must not only have the technical skills that high-tech industries are looking for, and the prospect must also have the soft skills to go along with it.

Recommendations

Future research is needed to determine whether the findings in this study can be duplicated. The researcher recommended expanding the research to include more participants in the study. Additional research utilizing the survey instruments developed for this study might substantiate the validity of the instruments.

It is recommended that future research of this type be conducted with other two-year colleges in other states to better determine on a larger scale the perceived importance of workplace readiness skills from educators and industry supervisors. This study did not isolate faculty responses from administrator responses. Related future research may separate these responses to see if the perceptions of college administrators and technical faculty are in line with industry supervisors.

It is also recommended that colleges should emphasize the integration of teaching workplace readiness competencies in all courses. Industry has made it clear that basic workplace skills and competencies are expected to be successful in the high-tech industries of Alabama. Colleges should also provide the necessary financial support for professional development to ensure that the respective faculty has the proper training to incorporate these workplace readiness skills into the curricula.

Colleges should implement an assessment system that will focus on work ethics in addition to the academic and technical portion of the curricula. It is recommended that the curricula include assessments on such competencies as:

1. Effective communication (written, orally, technical)
2. Teamwork
3. Professionalism
4. Attendance
5. Punctuality
6. Ability to get along with others
7. Leadership ability
8. Honesty/Integrity
9. Customer service
10. Ability to listening

It is also recommended that technical programs be set up as closely to a work environment as possible. When an employee is on the job and has a problem they cannot solve, the employee has access to co-workers, Internet, other technology and equipment,

books, and manuals in order to solve the problem. Students enrolled in institutions of higher learning are not allowed to use the resources at their disposal to solve problems. Educators typically tell students what tools or resources the student is limited to in order to solve the problem. High-tech industrial firms need employees who know how to use the resources available to solve problems. Technical programs in Alabama must adopt this way of thinking so that students will be better prepared to work in today's market.

Colleges should continue to work very closely with their local business and industries to have a current understanding of the needs of the employers. Colleges should involve industry in curriculum planning and development and collaborate on projects to assist in developing the necessary workplace skills either on the college campus or on the job. It is also recommended that colleges offer cooperative education learning experiences for students and industry. Co-op programs help link students with industry and students can learn first hand the workplace skills that industry expects of them while attending college.

It is recommended that additional research be conducted to identify the most successful models of integrating workplace skills in college level technical programs. It is vitally important for an institution to adopt a model that has been proven to work and meet the needs of industry. In addition, research should be conducted to assess the effectiveness of implementing workplace readiness skills into the curricula. It is important to know if the educators are seeing any type of difference in their student's completion rates, job placement rates, and/or length of time on job. It would also be important to hear from the business and industry representatives who are hiring these

graduates from programs where workplace readiness skills have been implemented into the curricula. Research should be conducted to see if industries are having less attrition, are more productive and have increased salaries as a result of a more highly qualified employee.

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APPENDIX A

MISSION STATEMENT OF THE ALABAMA COLLEGE SYSTEM

Alabama College System Mission Statement

The Alabama College System, consisting of public two-year community and technical colleges and an upper division university, seeks to provide accessible, quality educational opportunities; promote economic growth; and enhance the quality of life for the people of Alabama.

Policy 108.01
Effective 03-24-05

APPENDIX B

LISTING OF ALL TWO-YEAR COLLEGES IN ALABAMA

Alabama Two-Year College System

Community Colleges

Alabama Southern Community College – Monroeville, Alabama

Bevill State Community College – Sumiton, Alabama

Bishop State Community College – Mobile, Alabama

Calhoun Community College – Decatur, Alabama

Central Alabama Community College – Alexander City, Alabama

Chattahoochee Valley Community College – Phoenix City, Alabama

Enterprise Ozark Community College – Enterprise, Alabama

Jefferson Davis Community College – Brewton, Alabama

Faulkner State Community College – Bay Minette, Alabama

Gadsden State Community College – Gadsden, Alabama

Jefferson State Community College – Birmingham, Alabama

Lawson State Community College – Birmingham, Alabama

Lurleen B. Wallace Community College – Andalusia, Alabama

Northeast Alabama Community College – Rainsville, Alabama

Northwest-Shoals Community College – Muscle Shoals, Alabama

Shelton State Community College – Tuscaloosa, Alabama

Snead State Community College – Boaz, Alabama

Southern Union State Community College – Wadley, Alabama

George C. Wallace Community College – Dothan, Alabama

Wallace State Community College – Hanceville, Alabama

George Corley Wallace State Community College – Selma, Alabama

Technical Colleges

Drake State Technical College – Huntsville, Alabama

Ingram State Technical College – Deatsville, Alabama

Reid State Technical College – Evergreen, Alabama

Trenholm State Technical College – Montgomery, Alabama

Upper Division College

Athens State University – Athens, Alabama

APPENDIX C

ACETEA SUMMARY REPORT

Soft Skills Inventory

(Indicate relative importance: 5 - most important, 1 - least important, N/A - not appicable)

#	Desired Trait	Description of Trait	5	4	3	2	1	N/A
1.	Attendance	Reliably showing up for work as scheduled	91.84%	6.12%	0.00%	0.00%	1.02%	1.02%
2.	Attitude	Verbal and nonverbal expression of feelings, thoughts, and general mindset towards all aspects	51.02%	41.84%	5.10%	0.00%	1.02%	1.02%
3.	Behavior Modeling	Demonstrating positive workplace behaviors worthy of emulation	50.00%	40.82%	7.14%	0.00%	1.02%	1.02%
4.	Can Take Direction / Constructive Feedback from Peers	Ability to follow rules and directions; demonstrating loyalty to leadership and management; capacity to accept work-related analysis and evaluation from coworkers	66.33%	27.55%	3.06%	1.02%	0.00%	2.04%
5.	Commitment to Quality/Taking Pride in Work	Taking pride in work and striving for continuous improvement and perfection in the work process as well as in productivity	81.63%	16.33%	1.02%	0.00%	0.00%	1.02%
6.	Communication Skills	Ability to clearly and accurately deliver information both orally and in writing	44.90%	46.94%	6.12%	0.00%	1.02%	1.02%
7.	Conflict Management	Identifying and handling conflict in a tactful, fair and efficient manner; seeking resolution in a manner not to interfere with work performance while bringing about a harmonious atmosphere	37.76%	41.84%	19.39%	0.00%	0.00%	1.02%
8.	Customer Service	Meeting and exceeding customer expectations while being polite and maintaining the integrity of company policies and guidelines	50.00%	31.63%	14.29%	1.02%	0.00%	3.06%
9.	Decision Making	Effectively executing sound problem solving techniques to make proper decisions	60.20%	35.71%	3.06%	0.00%	0.00%	1.02%
10.	Diversity	Recognizing and appreciating the value of the differences among people	29.59%	34.69%	29.59%	2.04%	1.02%	3.06%
11.	Dress and Appearance (Professional Image)	Projecting a professional and positive external self image that represents the values and standards of an organization	29.59%	34.69%	27.55%	4.08%	1.02%	3.06%

(Indicate relative importance: 5 - most important, 1 - least important, N/A - not appicable)

#	Desired Trait	Description of Trait	5	4	3	2	1	N/A
12.	Etiquette	Understanding and valuing the good manners prescribed by the professional work environment (including telephone, electronic, and in-person interaction)	35.71%	41.84%	16.33%	3.06%	0.00%	3.06%
13.	Executive Coaching (Mentoring)	Using leadership abilities to strengthen individuals' self-confidence, personal effectiveness, productivity and performance; utilizing individual talents to promote personal and professional growth; identifying subordinates' competencies and weaknesses	30.61%	31.63%	22.45%	6.12%	3.06%	6.12%
14.	Interview Skills	Understanding the purposes, types, and stages of interviews; knowing the types of questions to expect and appropriate responses to interview questions	21.43%	33.67%	28.57%	5.10%	3.06%	8.16%
15.	Job-Seeking Skills	Developing appropriate and effective career and employment strategies to obtain and retain employment	25.51%	41.84%	18.37%	8.16%	4.08%	2.04%
16.	Leadership	Ability to effectively and efficiently influence others to accomplish tasks	35.71%	38.78%	19.39%	4.08%	0.00%	2.04%
17.	Managing Emotions (Emotional Control)	Understanding oneself and effectively managing feelings in a manner that maintains the integrity of the professional work environment	36.73%	48.98%	10.20%	2.04%	1.02%	1.02%
18.	Money Matters (Financial Management)	Understanding basic personal financial planning techniques and workplace resource management	13.27%	42.86%	26.53%	12.24%	3.06%	2.04%
19.	Phone / Telecommunications Etiquette	Communicating effectively in a courteous and professional manner	35.71%	29.59%	27.55%	4.08%	2.04%	1.02%
20.	Prioritizing / Organization	Identifying project tasks and determining efficient task importance, categorizing, and sequencing	38.78%	38.78%	16.33%	3.06%	0.00%	3.06%
21.	Problem Solving	Understanding and applying a systematic approach to solve problems or improve a process	72.45%	19.39%	6.12%	1.02%	0.00%	1.02%
22.	Punctuality	Being on time and being prompt; being ready to work prior to shift start time	84.69%	10.20%	3.06%	0.00%	1.02%	1.02%

(Indicate relative importance: 5 - most important, 1 - least important, N/A - not appicable)

#	Desired Trait	Description of Trait	5	4	3	2	1	N/A
23.	Sharing	Willingness to give of time, talent, expertise, equipment, materials, ideas, and other assistance to team members without regard to selfish concerns	47.96%	41.84%	8.16%	0.00%	0.00%	2.04%
24.	Stress Management	Ability to exercise effective techniques to minimize the impact of workplace and personal stressors on work performance	24.49%	48.98%	23.47%	0.00%	1.02%	2.04%
25.	Task Oriented	Ability to maintain focus on assignments through completion or release from responsibility	50.00%	41.84%	6.12%	1.02%	0.00%	1.02%
26.	Teamwork	Valuing team membership; understanding team member roles; understanding beneficial team behaviors	56.12%	29.59%	11.22%	2.04%	0.00%	1.02%
27.	Time Management	Ability to establish and follow a schedule that promotes an effective use of time; understanding how effective use of time impacts an organization	51.02%	39.80%	6.12%	1.02%	1.02%	1.02%
28.	Workplace Safety	Reducing and eliminating factors and work methods that risk or harm workers or their resources	81.63%	13.27%	3.06%	0.00%	1.02%	1.02%

APPENDIX D

ALABAMA COLLEGE SYSTEM CAREER/TECHNICAL PROGRAMS

Alabama College System
Career/Technical Education Programs

Programs	Colleges Offering Program
AC/Refrigeration Technology	Bessemer, Bevill, Bishop, Calhoun, Gadsden, Jefferson Davis, Lurleen B. Wallace, Northwest-Shoals, Shelton, Trenholm, Wallace-Dothan, Wallace-Dothan Sparks Campus (Eufaula), Wallace-Selma
Accounting Technology/ Accounting Related	Gadsden, Bevill, Bessemer, Bishop, Calhoun, Central Alabama, Chattahoochee Valley, Drake, Jefferson Davis, Jefferson State, Lawson, Lurleen B. Wallace, NW-Shoals, Trenholm, Reid, Wallace-Dothan, Wallace-Dothan Sparks Campus (Eufaula), Wallace-Hanceville
Aerospace Technology	Calhoun
Agricultural Production	Wallace-Hanceville
Agriculture	Enterprise, Jefferson State
Automated Manufacturing	Jefferson State
Automotive Body Repair	Bevill, Bishop, Gadsden, Ingram, Jefferson Davis, Lawson, NW-Shoals, Reid, Shelton, Southern Union, Trenholm, Wallace-Dothan, Wallace-Dothan Sparks Campus (Eufaula), Wallace-Hanceville, Wallace-Selma
Automotive Mechanics	Bessemer, Bevill, Bishop, Drake, Gadsden, Ingram, Jefferson Davis, Lurleen B. Wallace, NW-Shoals, Shelton, Southern Union, Wallace-Dothan, Wallace-Hanceville, Wallace-Selma
Automotive Technology	Bessemer, Trenholm, Wallace-Dothan, Enterprise-Ozark (Aviation Campus)
Aviation Maintenance-Airframe	Enterprise-Ozark (Aviation Campus) and Mobile Center
Aviation Maintenance-Power plant	Enterprise-Ozark (Aviation Campus) and Mobile Center
Aviation Technology (Commercial)	Enterprise-Ozark (Aviation Campus) and Mobile Center
Aviation Technology (General)	Enterprise-Ozark (Aviation Campus) and Mobile Center
Aviation Technology (Private)	Wallace-Hanceville
Aviation Systems/Avionics Tech	Wallace-Dothan Aviation Campus(Ozark)
Banking and Finance	Bevill, Central Alabama, Chattahoochee Valley, Jefferson Davis, Jefferson State, Lawson, Shelton, Northeast Alabama, Wallace-Selma
Barbering	Bevill, Bishop, Calhoun, Drake, Ingram, Jefferson Davis, Lawson, Shelton
Biomedical Equipment Tech	Jefferson State, Northwest-Shoals
Building Construction	Bessemer, Trenholm
Building Maintenance	Bessemer, Drake, Northwest-Shoals, Shelton
Business	Bevill, Bishop, Calhoun, Central Alabama, Chattahoochee Valley, Enterprise, Faulkner, Lawson, Northeast Alabama, Shelton, Wallace-Hanceville, Wallace-Selma, Jefferson Davis
Cabinetmaking	Bishop, Gadsden, Ingram, Jefferson Davis, Lawson, Reid, Southern Union, Trenholm Wallace-Dothan, Wallace-Dothan Sparks Campus (Eufaula), Wallace-Hanceville
Call Center/Customer Service	Jefferson State

Carpentry	Ayers, Bishop, Gadsden, Ingram, Jefferson Davis, Lawson, Northwest-Shoals, Reid, Shelton, Trenholm
Chemical Technology	Northwest-Shoals, Jefferson Davis
Child Development	Bevill, Bishop, Calhoun, Central Alabama, Chattahoochee Valley, Enterprise, Faulkner, Gadsden, Jefferson State, Lawson, Northwest-Shoals, Reid, Shelton, Snead, Southern Union, Trenholm, Wallace-Hanceville
Civil Engineering Technology	Bishop, Gadsden, Wallace-Dothan
Clerical Technology	Bessemer, Central Alabama, Gadsden, Ingram, Southern Union, Wallace-Dothan Sparks Campus (Eufaula), Wallace-Hanceville, Wallace-Selma
Clinical Laboratory Technology	Bevill, Gadsden, Jefferson State, Wallace-Dothan, Wallace-Hanceville
Commercial Art	Bessemer, Faulkner, Shelton
Commercial Sewing	Bishop, Ingram, Lawson, Trenholm, Wallace-Hanceville
Commercial Food Service	Bishop, Gadsden, Ingram, Jefferson Davis, Lawson, Shelton, Wallace-Hanceville
Computer Tomography	Wallace-Hanceville
Computer Graphics/ Electronic Imaging	Calhoun, Bessemer
Computer Graphics/ Graphic Design	Calhoun
Computer Maintenance Technology	Enterprise-Ozark, Bessemer
Computer Numerical Control	Bessemer, Calhoun, Central Alabama, Shelton, Wallace-Hanceville
Computer Repair Networking	Bessemer, Bevill
Computer Science/Computer Information Systems	Bessemer, Bevill, Bishop, Calhoun, Central Alabama, Chattahoochee Valley, Drake, Enterprise, Faulkner, Gadsden, Ingram, Jefferson State, LBW, Lawson, Northeast Alabama, Northwest-Shoals, Reid, Shelton, Snead, Southern Union, Trenholm, Wallace-Dothan, Wallace-Dothan Sparks Campus (Eufaula), Wallace-Hanceville, Wallace-Selma
Computer Science – A+ Certification	Bessemer, Bevill, Bishop, Central Alabama, Drake, Jefferson State, Lawson, Southern Union, Trenholm
Computer Science – Certified Novell Administrator (CAN)	Lawson
Computer Science – Certified Novell Engineer (CNE)	Lawson
Computer Science – Cisco Certified Network Associate (CCNA)	Bessemer, Bevill, Chattahoochee Valley, Drake, Gadsden, Jefferson Davis, Jefferson State, Trenholm, Wallace-Dothan
Computer Science – Cisco Certified Network Professional (CCNP)	Jefferson State
Computer Science – C-tech Certification (fiber optics/copper installation)	Trenholm
Computer Science – Office Administration Management Information Systems Option	Bevill, Central Alabama
Computer Science – Microsoft Certified Solutions Developer (MCSD)	Lawson
Computer Science – Microsoft Certified Systems Engineer (MCSE)	Bessemer, Bishop, Drake, Jefferson State, Lawson, Southern Union, Trenholm, Wallace-Dothan
Computer Science – Microsoft Office User Specialist (MOUS)	Bessemer, Bevill, Calhoun, Jefferson State, Lawson, Southern Union, Trenholm
Computer Science – Oracle Certification	Lawson
Computer Technology	Gadsden, Bessemer
Construction Management Technology	Jefferson State

Cosmetology	Alabama Southern, Bevill, Bishop, Calhoun, Central Alabama, Drake, Gadsden, Ingram, Lawson, LBW, Northwest-Shoals, Reid, Shelton, Southern Union, Trenholm, Wallace-Dothan, Wallace-Dothan Sparks Campus (Eufaula), Wallace-Hanceville, Wallace-Selma
Cosmetology Instructor Training	Gadsden, Bevill, Bishop, Calhoun, Drake, Northwest-Shoals, Reid, Shelton, Trenholm, Wallace-Dothan Sparks Campus (Eufaula), Wallace-Hanceville, Wallace-Selma
Court Reporting	Faulkner, Gadsden
Criminal Justice	Chattahoochee Valley, Enterprise, Jefferson Davis, Jefferson State, Lawson, Northwest-Shoals, Wallace-Hanceville, Wallace-Selma
Crime Scene Investigation	Jefferson State
Culinary Arts	Trenholm
Data Processing Technology	Chattahoochee Valley
Dental Lab Technology	Trenholm
Dental Assisting	Bessemer, Calhoun, Faulkner, Trenholm, Wallace-Hanceville
Dental Hygienist	Wallace-Hanceville
Diesel Mechanics	Gadsden, Bessemer, Bevill, Bishop, Ingram, LBW, Shelton, Trenholm, Wallace-Hanceville
Drafting and Design Technology	Gadsden, Bessemer, Bevill, Bishop, Calhoun, Central Alabama, Drake, Ingram, Jefferson Davis, Lawson, LBW, Northeast Alabama, Northwest-Shoals, Shelton, Southern Union, Trenholm, Wallace-Dothan, Wallace-Dothan Sparks Campus (Eufaula), Wallace-Hanceville, Wallace-Selma
Electrical Technology	Bessemer, Bevill, Bishop, Calhoun, Drake, Gadsden, Ingram, Jefferson Davis, Lawson, Northwest-Shoals, Shelton, Trenholm, Wallace-Dothan, Wallace-Dothan Sparks Campus (Eufaula), Wallace-Selma
Electrician Apprenticeship	Bevill
Electro Optics	
Electrocardiography	Wallace-Hanceville
Electronic Engineering Technology	Bishop, Gadsden, Lawson, Snead, Wallace-Hanceville
Electronics (Communications)	Bessemer, Bevill, Ingram
Electronics (Consumer)	Ingram, Lawson
Advanced Electronics Manufacturing(AEM)	Calhoun
Emergency Medical Services	Alabama Southern, Bevill, Bishop, Calhoun, Central Alabama, Chattahoochee Valley, Enterprise, Faulkner, Gadsden, Jefferson Davis, Jefferson State, Lawson, LBW, Northeast Alabama, Northwest-Shoals, Shelton, Southern Union, Trenholm, Wallace-Dothan, Wallace-Dothan Sparks Campus (Eufaula), Wallace-Hanceville, Wallace-Selma
Energy Conservation	Northwest-Shoals
Engineering Technology	Bishop, Snead
Entrepreneurship	Calhoun
Environmental Technology	Northwest-Shoals
Fire Science	Chattahoochee Valley, Jefferson Davis, Jefferson State, Lawson, Northwest-Shoals, Shelton, Southern Union, Wallace-Dothan, Wallace-Hanceville, Wallace-Selma
Fishery Science	Gadsden

Forest Products Technology	
Forestry	Alabama Southern, LBW
Funeral Services	Bishop, Jefferson State
Furniture Refinishing	Gadsden, Ingram
Geographic Information Systems	Calhoun, Bishop
Gerontological Services	Shelton
Graphics & Printing (Non-Degree)	Bessemer, Shelton
Graphics & Printing (Degree)	Bishop, Drake, Trenholm
Hazardous Materials Technology	Faulkner
Heating and Air Conditioning	Bessemer, Calhoun, Central Alabama, Drake, Southern Union, Wallace-Hanceville
Heavy Equipment Operator	Ingram, Jefferson Davis, Shelton
Highway Construction Technology	Northwest-Shoals
Home Health Aide	Calhoun, Gadsden, Jefferson Davis, Lawson, Southern Union, Trenholm
Horticulture	Bessemer, Ingram, Northwest-Shoals, Trenholm, Wallace-Hanceville
Hospitality Service Management	Faulkner, Jeff State, Trenholm
Human Resources Management Certification	Jeff State
Human Services	Wallace-Hanceville
Industrial Electronics Technology	Gadsden, Bessemer, Bevill, Central Alabama, Drake, Ingram, Jefferson Davis, LBW, Northeast Alabama, Northwest-Shoals, Reid, Shelton, Southern Union, Trenholm, Wallace-Dothan, Wallace-Dothan Sparks Campus (Eufaula), Wallace-Hanceville
Industrial Production	Alabama Southern
Industrial Engineering Technology	Alabama Southern, Wallace-Dothan
Industrial Maintenance Technology	Bessemer, Bevill, Bishop, Calhoun, Gadsden, Lawson, Northwest-Shoals, Reid, Shelton, Snead, Southern Union, Trenholm, Wallace-Dothan Sparks Campus (Eufaula)
Industrial Technology	Gadsden
Instrumentation Technology	Bishop, Calhoun
Interior Design	Ingram, Jefferson State, Trenholm
ISO 9000 Training	Gadsden
Landscape Operations Management	Faulkner, Shelton
Leisure Facilities Management	Faulkner
Legal Transcription	Bevill
Library assistant	
Machine Tool Technology/Machining Related	Bessemer, Bevill, Bishop, Calhoun, Central Alabama, Drake, Gadsden, Northwest-Shoals, Shelton, Southern Union, Trenholm, Wallace-Dothan, Wallace-Hanceville, Wallace-Selma
Magnetic Resonance Imaging (MRI)	Wallace-Hanceville
Mammography	Southern Union, Wallace-Hanceville
Management and Supervision	Bishop, Calhoun, Central Alabama, Chattahoochee Valley, Jefferson Davis, Jefferson State, Lawson, Northeast Alabama, Northwest-Shoals, Shelton, Snead, Southern Union, Wallace-Hanceville
Manufacturing Production	Bishop
Marketing	Gadsden
Masonry	Bishop, Gadsden, Ingram, Jefferson Davis, Lawson, Reid, Shelton, Trenholm, Wallace-Dothan Sparks Campus (Eufaula), Wallace-Selma
Medical Assisting	Trenholm, Wallace-Dothan, Wallace-Hanceville
Medical Coding	Jefferson State, Wallace-Hanceville

Medical Transcription	Bevill, Bishop, Jefferson State, Shelton, Snead, Southern Union, Wallace-Dothan, Wallace-Hanceville
Missile Munitions Technology	Calhoun
Music Industry Communication	Calhoun
Nail Technician	Calhoun, Bevill, Reid, Trenholm, Wallace-Hanceville
Non-Destructive Testing Technology	Northwest-Shoals
Nursing Assistant	Bessemer, Bevill, Bishop, Calhoun, Central Alabama, Chattahoochee Valley, Drake, Gadsden, Jefferson Davis, Lawson, LBW, Reid, Shelton, Southern Union, Trenholm, Wallace-Dothan, Wallace-Selma, Wallace-Hanceville
Nursing (LPN)	Alabama Southern, Bessemer, Bevill, Bishop, Calhoun, Central Alabama, Chattahoochee Valley, Drake, Gadsden, LBW, Northwest Shoals, Reid, Shelton, Southern Union, Trenholm, Wallace-Dothan, Wallace-Dothan Sparks Campus (Eufaula), Wallace-Hanceville, Wallace-Selma
Nursing (RN)	Alabama Southern, Bevill, Bishop, Calhoun, Central Alabama, Chattahoochee Valley, Gadsden, Jefferson Davis, Jefferson State, Lawson, Northeast Alabama, Northwest-Shoals, Shelton, Southern Union, Wallace-Dothan, Wallace-Hanceville, Wallace-Selma
Occupational Health Safety	Bishop
Occupational Therapy Assistant	Wallace-Hanceville
Office Administration	Alabama Southern, Bessemer, Bevill, Bishop, Calhoun, Central Alabama, Chattahoochee Valley, Drake, Enterprise, Faulkner, Gadsden, Ingram, Jefferson Davis, Jefferson State, LBW, Lawson, Northeast Alabama, Northwest-Shoals, Reid, Shelton, Snead, Southern Union, Trenholm, Wallace-Dothan, Wallace-Dothan Sparks Campus (Eufaula), Wallace-Hanceville, Wallace-Selma
Optical Technology	Wallace-Dothan
Paralegal (Transition)	Ingram
Paralegal	Bevill, Calhoun, Enterprise, Faulkner, Gadsden, Jefferson State, Northeast Alabama, Shelton, Wallace-Hanceville
Parks, Recreation, and Leisure Facilities Management	Enterprize-Ozark, Lawson
Pharmacy Technology	Wallace-Hanceville
Phlebotomy	Jefferson State
Photography and Film Communications	Bessemer, Calhoun
Physical Therapy Assistant	Bishop, Jefferson State, Wallace-Dothan, Wallace-Hanceville
Plumbing	Bishop, Gadsden, Ingram, Lawson, Trenholm, Wallace-Dothan Sparks Campus (Eufaula)
Polysomnographic Technology	Calhoun
Postal Management	Jefferson Davis, Wallace-Hanceville
Process Technology(PCT)	Calhoun
Process and Instrumentation Technology (two training options: Instrument Technician and Chemical Process Operator)	Bishop
Quality Control Technology	Calhoun
Radio and TV Broadcasting	Gadsden, Jefferson State, Lawson, Trenholm
Radiologic Technology	Gadsden, Jefferson State, Southern Union, Wallace-Dothan, Wallace-Hanceville

Real Estate	Calhoun, Central Alabama, Faulkner, Jefferson State, Lawson, Northeast Alabama
Respiratory Therapy	Shelton, Wallace-Dothan, Wallace-Hanceville
Retail Merchandising	Jefferson State
Secretarial Science	Bevill
Security	Calhoun
Shoe and Boot Repair	Jefferson Davis
Small Business Management	Bevill, Chattahoochee Valley, Northwest-Shoals
Small Engine Repair	Gadsden, Jefferson Davis, Shelton, Wallace-Dothan, Wallace-Dothan Sparks Campus (Eufaula)
Social Work Technician	Lawson
Sonography, Diagnostic Medical	Southern Union, Wallace-Hanceville
Surgical Operating Room Technician	Gadsden, Bevill, Calhoun, Faulkner, LBW, Southern Union
Textile Technology	
Timber Harvesting	
Traffic and Transportation	Calhoun
Training for Front-Line Supervisors	Gadsden
Truck Driving	Bevill, Bishop, Reid, Shelton, Trenholm, Wallace-Hanceville
Turf Management	Bessemer, Shelton
Turf Equipment Repair	Faulkner
Upholstery	Gadsden, Ingram, Jefferson Davis, LBW, Northwest-Shoals, Southern Union, Wallace-Dothan, Wallace-Hanceville
Vascular Technology	Wallace-Hanceville
Veterinary Technology	Snead
Watch and Jewelry Repair	Bishop
Water and Wastewater Technology	Bishop, Jefferson Davis, Lawson, Northeast Alabama, Northwest-Shoals, Wallace-Hanceville
Welding Technology	Alabama Southern, Bessemer, Bevill, Bishop, Central Alabama, Drake, Gadsden, Ingram, Jefferson Davis, LBW, Northwest-Shoals, Reid, Shelton, Snead, Southern Union, Trenholm, Wallace- Dothan, Wallace-Dothan Sparks Campus (Eufaula), Wallace-Hanceville, Wallace-Selma

APPENDIX E

MAJOR INITIATIVES IN ALABAMA POSTSECONDARY

CAREER/TECHNICAL EDUCATION

MAJOR INITIATIVES IN ALABAMA POSTSECONDARY CAREER/TECHNICAL EDUCATION

The Department of Postsecondary Education will focus on five major initiatives designed to:

- implement the *Workforce 21* strategic plan;
- implement the 2000-2005 State Plan for Career/Technical Education; and
- position The Alabama College System to more effectively carry out its role in the state's workforce and economic development efforts.

Following are the major initiatives and components of each.

Competency Assessment and Documentation
ACT WorkKeys® and Work Habits® assessments
Technical competency assessments
Individualized instruction based on assessment results
Alabama College System Credentials Document

Program Delivery and Learning Alternatives
Baccalaureate enrollment options for career/technical education students
Mentorships
Apprenticeships
Competency-based curricula and student progression
Targeted instruction
Multiple enrollment and exit points
Cooperative education
Distance education
On-site training
Secondary/postsecondary articulation
Weekend and evening programs
Flexible, accommodating class times
Shared facilities

Business and Industry Focus
Program and instructor industry certification
ACT WorkKeys® Service Centers
ACT WorkKeys® Job Profiling
Customized training
On-site education and training
Curricula revisions based on industry-identified competencies
Stakeholder active involvement in planning and evaluation

Comprehensive Professional Development
Faculty-identified professional development needs and activities
Networking through Program Faculty Leaders structure
Focused professional development activities
Industry-provided technical updates
Leadership training
New Instructor Orientation Program

Measuring and Planning Progress
Efficient data collection and reporting
Rigorous performance measures and standards
College and state action plans and performance reports
Annual progress reports to State Legislature and State Board of Education
Annual progress reports at regional public meetings

For more information, contact Ken Hamm at ken.hamm@acs.cc.al.us or at (334) 242-2948.

APPENDIX F

ALABAMA POSTSECONDARY CAREER/TECHNICAL EDUCATION

PERFORMANCE MEASURES AND STANDARDS

Alabama Postsecondary Career/Technical Education Performance Measures and Standards

The state postsecondary performance measures and standards were developed over a two-year period with stakeholder input through the State Committee of Practitioners, The Alabama College System Measures and Standards Committee, the Student Competency Assessment and Documentation Committee, the Alabama Council on Career/Technical Education, and college presidents, deans, and instructors. (Imperatives 4, 5)

Following is the sequence of activities that resulted in the postsecondary core standards and performance measures. These activities occurred between April 1997 and March 2000.

1. The Alabama College System Career/Technical Education Performance Measures and Standards Committee identified draft measures and standards for presentation to various stakeholder groups.

2. Draft measures and standards were presented to the Alabama Council on Career/Technical Education. Revisions were made as recommended by the Council.

3. Through a census survey, instructional officers in the system made comments and recommendations relative to the proposed measures and standards. Appropriate revisions were made.

4. Draft measures and standards were presented to the Committee of Practitioners. Revisions were made as recommended by the Committee.

5. Survey instruments were sent to various stakeholders requesting them to rate the feasibility and importance of each proposed measure. Survey instruments were sent to the following: college presidents, instructional officers, members of the Alabama Council on Career/Technical Education, and members of the Alabama State Board of Education. Instruments were also sent to a random sample of career/technical education instructors in the System. Mean scores indicating the feasibility of collecting requisite data and the importance of each measure were determined. Those measures rating low in feasibility and importance were deleted.

6. Participants in the *Workforce 21* strategic plan development process identified performance indicators. Participants provided input through eleven regional meetings, four focus groups, and in position papers. Their recommendations were used to refine the proposed performance measures.

7. College presidents and instructional officers identified standards for each performance measure through a modified Delphi technique.

8. After consultation with U.S. Department of Education officials, certain measures were deleted; others were identified as addressing one or more of the following: Perkins Act core indicators, potential indicators under the Workforce Investment Act, and internal indicators that will only be used at the state level. (Note: All measures are internal indicators, but certain ones are only internal indicators.)

9. The Student Competency Assessment and Documentation Committee recommended the use of ACT Work Keys® to measure applied academic and technological competency attainment.

10. The Student Competency Assessment and Documentation Committee recommended language clarifying performance measures.

Following are performance measures and targeted levels of performance for career/technical education in The Alabama College System. The targeted levels of performance are the state standards. Actions and initiatives identified in the postsecondary section of the State Plan and in college plans are designed to move The Alabama College System from the current to the targeted levels of performance.

The performance measures respond to the *Workforce 21* strategic plan and the accountability requirements of the 1998 Perkins Act and the Workforce Investment Act. Both acts identify core performance indicators and allow for states to identify additional measures. The postsecondary measures and targets serve as planning objectives and evaluation criteria at the program, college, and state levels.

Perkins Core Indicators

- Student attainment of challenging state-established academic, vocational, and technical skill proficiencies.
- Student attainment of a secondary school diploma or its recognized equivalent, a proficiency credential in conjunction with a secondary school diploma, or a postsecondary degree or credential.
- Placement in, retention in, and completion of, postsecondary education or advanced training, placement in military service, or placement or retention in employment.
- Student participation in and completion of vocational and technical education programs that lead to nontraditional training and employment.

Performance measures are grouped by corresponding *Workforce 21* imperatives, thus illustrating the relationship between *Workforce 21* and the postsecondary components of the State Plan. The link between the postsecondary performance measures and the core indicators required in the Perkins legislation and the Workforce Investment Act is shown in italics following each measure. For example, measure 1.a, "% completers scoring at or above the academic competency attainment levels identified for their particular program as measured by appropriate assessment instruments", is the response of The Alabama College System's to:

- Perkins Act core indicator 1, "student attainment of challenging state-established academic, vocational, and technical skill proficiencies"; and
- WIA Title II core indicator I, "demonstrated improvements in literacy skills levels in reading, writing, and speaking the English language, numeracy, problem solving, English language acquisition, and other literacy skills.

Imperatives and Measures	Targeted Levels of Performance	
	2000-01	**2003-04**
IMPERATIVE 1: ENSURE THAT STUDENTS ATTAIN THE SKILLS AND KNOWLEDGE THEY WILL NEED IN THE FUTURE WORKPLACE AND FOR CONTINUED LEARNING.		
1.a % students exiting program who are full completers *Perkins core indicator: 3* *Potential WIA Title I indicator: 4* *Potential WIA Title II indicator: 1,2*	70%	75%
1.b % full completers able to apply mathematical reasoning to work-related problems at or above the skill level identified for their program as measured by the ACT Work Keys® Applied Mathematics assessment *Perkins core indicator: 1* *Potential WIA Title II indicator: 1*	75%	80%
1.c % full completers able to read and understand work-related instructions and policies at or above the skill level identified for their program as measured by the ACT Work Keys® Reading for Information assessment *Perkins core indicator: 1* *Potential WIA Title II indicator: 1*	75%	80%
1.d % full completers able to apply information presented in workplace graphics and gauges at or above the skill level identified for their program as measured by the ACT Work Keys® Locating Information assessment	75%	80%

Perkins core indicator: 1 *Potential WIA Title II indicator: 1*		
1.e % full completers able to solve problems of a technological nature at or above the skill level identified for their program as measured by the ACT Work Keys® Applied Technology assessment *Potential WIA Title II indicator: 1*	75%	80%
1.f % career/technical education students with a grade point average of 2.0 or higher in academic course work *Perkins core indicator: 1* *Potential WIA Title II indicator: 1*	75%	80%
1.g % career/technical education students with a grade point average of 2.0 or higher in career/technical course work *Perkins core indicator: 1* *Potential WIA Title II indicator: 2*	75%	80%
1.h % full completers passing required licensure/certification examinations *Perkins core indicators: 1, 2* *Potential WIA Title I indicator: 4* *Potential WIA Title II indicator: 1*	75%	80%
1.i % full completers scoring at or above the employability skills attainment level identified for their program as measured by the ACT Work Habits® assessment *Potential WIA Title II indicator: 1*	75%	80%
1.j % full completers employed in occupations related to their training *Perkins core indicator: 3* *Potential WIA Title I indicator: 1* *Potential WIA Title II indicator: 2*	65%	70%
1.k % full completers employed in an occupation related to their training and/or continuing their education in a related field *Perkins core indicator: 3* *Potential WIA Title I indicator: 1*	70%	75%

Potential WIA Title II indicator: 2		
IMPERATIVE 2: EXPAND OPTIONS FOR STUDENTS TO ACHIEVE CAREER AND EDUCATION GOALS.		
2.a % students exiting program who are full completers or who are positive leavers *Perkins core indicator: 3*	75%	80%
2.b % retainers *Perkins core indicator: 3* *Potential WIA Title I indicator: 4* *Potential WIA Title II indicator: 2*	25%	30%
2.c % full completers receiving The Alabama College System Career/Technical Education Competency Credential *Perkins core indicator: 2* *Potential WIA Title I indicator: 4* *Potential WIA Title II indicators: 1, 2*	70%	100%
2.d % students enrolled in programs in preparation for non-traditional employment *Perkins core indicator: 4* *Potential WIA Title II indicator: 2*	15%	20%
2.e % students enrolled in programs in preparation for non-traditional employment who are full completers or who are positive leavers *Perkins indicator: 4* *Potential WIA Title II indicator: 2*	70%	75%
2.f % applicable programs having articulation agreements with secondary programs *Internal indicator (state use only)*	70%	100%
IMPERATIVE 3: ANTICIPATE AND RESPOND QUICKLY TO CHANGES IN THE WORKPLACE AND IN SOCIETY.		
3.a % programs for which advisory committees meet at least annually *Internal indicator (state use only)*	100%	100%

3.b % colleges in which stakeholders and other service providers actively participate in developing the Career/Technical Education Plan *Internal indicator (state use only)*	100%	100%
3.c % colleges using occupational demand data in making decisions regarding program implementation, expansion, or disinvestment *Internal indicator (state use only)*	100%	100%
3.d % businesses participating in Training for Business and Industry programs (or similar customized training programs) that indicate on evaluation instruments an overall satisfaction with the programs *Internal indicator (state use only)*	85%	90%
IMPERATIVE 4: CONTINUOUSLY IMPROVE THE QUALITY OF CURRICULUM AND INSTRUCTION.		
4.a % applicable programs certified by appropriate industry certification bodies *Internal indicator (state use only)*	20%	80%
4.b % full-time instructors attending at least one technical update activity annually *Internal indicator (state use only)*	75%	85%
4.c % programs in which curriculum is based on industry-identified competencies *Internal indicator (state use only)*	100%	100%
IMPERATIVE 5: DEMONSTRATE ACCOUNTABILITY.		
5.a % students reported in categories other than "status unknown" *Internal indicator (state use only)*	80%	85%
5.b % returned employer survey instruments indicating an overall positive perception of the training their employees received in career/technical education programs *Perkins core indicator: 1* *Potential WIA Title I indicator: 1*	80%	85%

Potential WIA Title II indicator: 1		
5.c % returned completer/leaver survey instruments indicating an overall positive perception of training received in career/technical education programs *Perkins core indicator: 1* *Potential WIA Title I indicator: 1* *Potential WIA Title II indicator: 1*	85%	90%
5.d % colleges that coordinate activities with other service providers to avoid duplication of programs and services *Internal indicator (state use only)*	100%	100%
5.e % programs that, in the previous three years, have met or exceeded the minimum number of completers specified in Act 96-557 as being necessary for a program to be considered viable *Internal indicator (state use only)*	80%	85%

ACS Career/Technical Education Home Page

APPENDIX G

E-MAIL SENT TO COLLEGE PERSONNEL PARTICIPATING IN THE STUDY

Hello Everyone!

I am a doctoral student at Mississippi State University and am currently conducting research for my dissertation on workplace skills that high-tech industries in Alabama deem important, compared to the perceptions of technical faculty and administrators in the Alabama College System.

I am requesting that you assist me in responding to some questions. The survey will only take a few minutes of your time. Your responses will be greatly appreciated.

Here is a link to the survey:
http://www.surveymonkey.com/s.aspx?sm=guYW1QutsvcF7pW_2fyi9LLZiTKmIRU9XdBDBR_2fj0VbAg_3d

This link is uniquely tied to this survey and your email address, please do not forward this message.

Thanks for your participation!

Jason Hurst
Central Alabama Community College
Director of Workforce Development
231 Haynes Street
Talladega, Alabama 35160
256-480-2066

APPENDIX H

INFORMED CONSENT FORM FOR COLLEGE PERSONNEL SURVEY

Informed Consent Form

Your assistance in obtaining this information is extremely important to the success of this study. All information provided will be kept confidential. Your participation is completely voluntary. Your refusal to not participate will not adversely affect you in anyway. You may choose to skip any question in this survey. Please select yes if you wish to begin this survey.

If you have any questions about this research project, you may contact Jason Hurst at 256-480-2066 or email at jhurst@cacc.edu. For additional information regarding your rights as a research subject, please feel free to contact the Mississippi State University Regulatory Compliance Office at (662) 325-5220.

Thank you in advance for your participation.

Yes, I agree to the above consent form.
No, I don't agree to the above consent form.

APPENDIX I

SURVEY INSTRUMENT FOR COLLEGE PERSONNEL

Workplace Skills Survey

Technical Faculty & Administrators

Please respond to the following opinion items regarding your perception of the workplace skills that are important to your institution. Rank the importance of each skill that you feel students should have when they finish school and enter the workforce. Please circle the answer that you choose.

1 = Most Important 2 = Somewhat Important 3 = No Opinion
4 = Not very Important 5 = Least Important

1. Time – selects goal-relevant activities, ranks them, and prepares and follows schedules.	1 2 3 4 5
2. Money – uses or prepares budgets, makes forecasts, keeps records, and makes adjustments to meet objectives.	1 2 3 4 5
3. Materials and facilities – acquire, store, allocate, and uses materials or space efficiently.	1 2 3 4 5
4. Human resources – assesses skills and distributes work accordingly, evaluates performance and provides feedback.	1 2 3 4 5
5. Participates as a member of a team – contributes to group effort	1 2 3 4 5
6. Teaches others new skills	1 2 3 4 5
7. Serves clients/customers – works to satisfy customer's expectations.	1 2 3 4 5
8. Exercises leadership – communicates ideas to justify position, persuades and convinces others responsibly challenges existing procedures and policies.	1 2 3 4 5
9. Negotiates – works toward agreements involving exchange of resources, resolves divergent interests.	1 2 3 4 5
10. Works with diversity – works well with men and women from diverse backgrounds	1 2 3 4 5
11. Acquires and evaluates information	1 2 3 4 5
12. Organizes and maintains information.	1 2 3 4 5
13. Interprets and communicates information.	1 2 3 4 5
14. Uses computers to process information.	1 2 3 4 5
15. Understands systems – knows how social, organizational, and technological systems work and operates effectively with them.	1 2 3 4 5
16. Monitors and corrects performance – distinguishes trends, predicts impacts on system operations, diagnoses deviations in system's performance and corrects malfunctions.	1 2 3 4 5
17. Improves or designs systems – suggests modifications to existing systems and develops new or alternative systems to improve performance.	1 2 3 4 5
18. Selects technology – chooses procedures, tools or equipment	1 2 3 4 5

including computers and related technologies.	
19. Applies technology to task – understands overall intent and proper procedures for setup and operation of equipment.	1 2 3 4 5
20. Maintains and troubleshoots equipment – prevents, identifies, or solves problems with equipment, including computers and other technologies.	1 2 3 4 5
21. Reading – locates, understands, and interprets written information in prose and in documents such as manuals, graphs, and schedules.	1 2 3 4 5
22. Writings – communicate thoughts, ideas, information, and messages in writing; and creates documents such as letters, directions, manuals, reports, graphs, and flow charts.	1 2 3 4 5
23. Arithmetic/mathematics – performs basic computations and approaches practical problems by choosing appropriately from a variety of mathematical techniques.	1 2 3 4 5
24. Listening – receives, attends to, interprets, and responds to verbal messages and other cues.	1 2 3 4 5
25. Speaking – organizes ideas and communicates orally.	1 2 3 4 5
26. Creative thinking – generates new ideas.	1 2 3 4 5
27. Decision making – specifies goals and constraints, generates alternatives, considers risks, and evaluates and chooses best alternative.	1 2 3 4 5
28. Problem solving – recognizes problems and devises and implements plan of action	1 2 3 4 5
29. Seeing things in the mind's eye – organizes and processes symbols, pictures, graphs, objects, and other information	1 2 3 4 5
30. Knowing how to learn – uses efficient learning techniques to acquire and apply new knowledge and skills.	1 2 3 4 5
31. Reasoning – discovers a rule or principle underlying the relationship between two or more objects and applies it when solving a problem.	1 2 3 4 5
32. Responsibility – exerts a high level of effort and perseveres towards goal attainment.	1 2 3 4 5
33. Self-esteem – believes in own self-worth and maintains a positive view of self.	1 2 3 4 5
34. Sociability – demonstrates understanding, friendliness, adaptability, empathy, and politeness in group settings.	1 2 3 4 5
35. Self-management – assesses self accurately, sets personal goals, monitors progress, and exhibits self-control	1 2 3 4 5
36. Integrity/honesty – chooses ethical course of action	1 2 3 4 5

Circle the number that indicates the extent to which you agree or disagree with the statement.
Strongly Agree = 1 Slightly Agree = 2 No Opinion = 3 Slightly Disagree = 4 Strongly Disagree = 5

37. Physical resources (equipment and supplies) are available to achieve integration of workplace readiness skills into the curricula.	1 2 3 4 5
38. Financial resources are available to achieve integration of workplace readiness skills into the curricula.	1 2 3 4 5
39. Opportunities for professional development are available to achieve integration of workplace readiness skills into the curricula.	1 2 3 4 5
40. Business/industry should teach workplace readiness skills.	1 2 3 4 5
41. Technical/Community colleges should teach workplace readiness skills.	1 2 3 4 5
42. Workplace readiness skills must be integrated into the curricula for the success of our students.	1 2 3 4 5
43. Workplace readiness skills can best be integrated by incorporating more academic content into technical courses.	1 2 3 4 5
44. Workplace readiness skills can best be integrated by combining vocational and academic instruction to enhance academic competencies in technical programs.	1 2 3 4 5
45. Workplace readiness skills can best be integrated by making the academic support courses more technically relevant.	1 2 3 4 5
46. Workplace readiness skills can best be integrated by modifying both technical and academic courses.	1 2 3 4 5
47. Workplace readiness skills can best be integrated through cooperative work/learning experiences.	1 2 3 4 5

APPENDIX J

E-MAIL SENT TO SUPERVISORS OF HIGH-TECH INDUSTRIES

Hello Everyone!

I am a doctoral student at Mississippi State University and am currently conducting research for my dissertation on workplace skills that high-tech industries in Alabama deem important, compared to the perceptions of technical faculty and administrators in the Alabama College System.

I am requesting that you assist me in responding to some questions. The survey will only take a few minutes of your time. Your responses will be greatly appreciated.

Here is a link to the survey:
http://www.surveymonkey.com/s.aspx?sm=guYW1QutsvcF7pW_2fyi9LLZiTKmIRU9XdBDBR_2fj0VbAg_3d

This link is uniquely tied to this survey and your email address, please do not forward this message.

Thanks for your participation!

Jason Hurst
Central Alabama Community College
Director of Workforce Development
231 Haynes Street
Talladega, Alabama 35160
256-480-2066

APPENDIX K

INFORMED CONSENT FORM FOR HIGH-TECH INDUSTRY SUPERVISOR

Informed Consent Form

Your assistance in obtaining this information is extremely important to the success of this study. All information provided will be kept confidential. Your participation is completely voluntary. Your refusal to not participate will not adversely affect you in anyway. You may choose to skip any question in this survey. Please select yes if you wish to begin this survey.

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Thank you in advance for your participation.

Yes, I agree to the above consent form.
No, I don't agree to the above consent form.

APPENDIX L

SURVEY INSTRUMENT FOR SUPERVISORS OF HIGH-TECH INDUSTRIES

Workplace Skills Survey
Industry Supervisors

Please respond to the following opinion items regarding your perception of the workplace skills that are important to your institution. Rank the importance of each skill that you feel students should have when they finish school and enter the workforce. Please circle the answer that you choose.

1 = Most Important **2 = Somewhat Important** **3 = No Opinion**
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1.	Time – selects goal-relevant activities, ranks them, and prepares and follows schedules.	1 2 3 4 5
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	including computers and related technologies.	
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34.	Sociability – demonstrates understanding, friendliness, adaptability, empathy, and politeness in group settings.	1 2 3 4 5
35.	Self-management – assesses self accurately, sets personal goals, monitors progress, and exhibits self-control	1 2 3 4 5
36.	Integrity/honesty – chooses ethical course of action	1 2 3 4 5

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46. Workplace readiness skills can best be integrated by modifying both technical and academic courses.	1 2 3 4 5
47. Workplace readiness skills can best be integrated through cooperative work/learning experiences.	1 2 3 4 5

APPENDIX M

APPROVAL DOCUMENTS

CACC Center
231Haynes Street
Talladega, AL. 35160
256-480-2076/866-429-1AUT

January 5, 2007

Jason Hurst
Director
Central Alabama Community College
231 Haynes Street
Talladega, Alabama 35160

Dear Mr. Hurst,

I am happy to respond to your request to use the data from our CARCAM industry survey in your research for your dissertation. You are permitted to quote, cite, use the tables, graphs, charts and any other materials provided as you see necessary and beneficial to your work. The survey was funded in part with funds provided by the National Science Foundation (NSF), and is intended for wide dissemination for the benefit of education and research. Please leave intact any credits we have included acknowledging NSF support, and any disclaimers as to the material representing CARCAM's work and viewpoints rather than those of the NSF. There are no other restrictions on your use of the data for research, but not commercial, purposes.

Again, we are pleased to assist you and hope you find the data relevant to your efforts.

Thank you,

Dale Cox

Dale Cox, Center Director/PI
CARCAM-DUE 0501328
CACC-Talladega Center
231 Haynes Street
Talladega, Alabama 35160
256-480-2078 office
256-480-2081 fax

ACETEA *Alabama Colleges for Electronic Technology Education Advancement*

National Science Foundation
ATE Grant #0302938

Lurleen B. Wallace Community College (fiscal agent) 1708 N. Main St, Opp, AL (334) 493-5313

August 27, 2007

Jason Hurst
Central Alabama Community College
Talladega Center
231 Haynes Street
Talladega, AL 35160

Dear Mr. Hurst,

By way of this communication, I am authorizing you to utilize research information compiled by the ACETEA project, an NSF-sponsored project created to enhance technological education in engineering technologies. This information is available to you in electronic format.

I request only that in your citation of the data that you include a credit to the National Science Foundation sponsorship of ATE Project # 0302938 Alabama Colleges for Engineering Technologies Education Advancement (ACETEA).

Sincerely,

John Reutter III
Project Director / Principal Investigator

Partnering with Alabama resources to build tomorrow's Technology Workforce

Mississippi State University

August 15, 2007

Jason Hurst
188 Hepzibah Road
Talladega, AL 35160

RE: IRB Study #07-026: The Role of Two-Year Postsecondary Technical Programs in Workforce Preparation: An Assessment of the Workplace Readiness Skills Desired by Industries and Preceived by College Personnel in Alabama

Dear Dr. Hurst:

The above referenced project was reviewed and approved via administrative review on 8/15/2007 in accordance with 45 CFR 46.101(b)(2). Continuing review is not necessary for this project. However, any modification to the project must be reviewed and approved by the IRB prior to implementation. Any failure to adhere to the approved protocol could result in suspension or termination of your project. The IRB reserves the right, at anytime during the project period, to observe you and the additional researchers on this project.

Please refer to your IRB number (#07-026) when contacting our office regarding this application.

Thank you for your cooperation and good luck to you in conducting this research project. If you have questions or concerns, please contact Christine Williams at cwilliams@research.msstate.edu or 325-5220.

Sincerely,

Katherine Crowley
Assistant IRB Compliance Administrator

cc: Ed Davis

Office for Regulatory Compliance
P. O. Box 6223 • 8A Morgan Street • Mailstop 9563 • Mississippi State, MS 39762 • (662) 325-3294 • FAX (662) 325-8776