Computer Education Needs and Usage in Bond, Fayette, and Effingham Counties

Derrold D. Jones
This research is a product of the graduate program in Educational Administration at Eastern Illinois University. Find out more about the program.

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Computer Education Needs and Usage

In Bond, Fayette, and Effingham Counties

Derrol D. Jones

Eastern Illinois University

Summer, 1994
Computer Education Needs and Usage

In Bond, Fayette, and Effingham Counties

(TITLE)

BY

Derrold D. Jones

THESIS
SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
Specialist in Education
IN THE GRADUATE SCHOOL, EASTERN ILLINOIS UNIVERSITY
CHARLESTON, ILLINOIS

1994
YEAR

I HEREBY RECOMMEND THIS THESIS BE ACCEPTED AS FULFILLING
THIS PART OF THE GRADUATE DEGREE OFFERED ABOVE

DATE       ADVISER

DATE       DEPARTMENT HEAD
Abstract

This study focused on the availability of and use of computer hardware and software by high school students. The students researched lived within the area served by Okaw Area Vocational Center, which includes Bond, Fayette, and Effingham Counties in Illinois. Parents, educators, and persons from business and industry were surveyed to determine educational needs and expectations related to computer use. Survey results were analyzed using descriptive statistics and correlational procedures. This study was developed to assist the Okaw Vocational Center area schools in the development of curricula based on technological data. The findings of this study support reference being made that entry level workplace computer skills need to be improved.
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Chapter I
Overview
Introduction and Background

The author has observed that the use of computers in the Illinois schools of Bond, Fayette, and Effingham counties has been increasing over the past twelve to fifteen years. The school districts in this region have purchased enough computers to establish laboratory settings in their junior high and high schools. They have purchased two or three computers for each elementary building. Individual schools and parent organizations have raised money or had fund raisers like "Computers for Education" in order to obtain more computers for the schools.

For the past three years the districts in the three counties have been purchasing IBM networks for their high school laboratories. The following questions have begun to surface as a result of these types of expenditures. Is the expense of a computer network a wise educational expenditure? Do parents in these districts see value in computer education? Do high school graduates have the computer skills they need for work in business and industry in our area?

Before beginning the study, the Regional Superintendent of Schools of Bond, Fayette, and Effingham counties in Illinois surveyed the administrators of the districts within the region regarding computer data that would help in
developing computer curricula (D. L. Maroon, personal communication, November 24, 1993). This survey was designed to identify information that would help educators in the development of computer curriculum for their buildings. This survey indicated that knowing the value parents placed on computer education was most important to the administrators. The next concern of administrators was the amount of time students used computers at home. The administrators also wanted to know the brand of computer hardware and the type of software used in the homes.

The Okaw Area Vocational Center at Vandalia, Illinois, services the high schools in Bond, Fayette, and parts of Effingham counties. The Okaw Area Vocational Center serves seven school districts in this area. The researcher talked with Mr. Darrell Fesser (personal communication, January 4, 1994), Director of the Okaw Area Vocational Center, about computer literacy skills students would need in the workplace. The Okaw Area Vocational Center was in the planning process of purchasing a new IBM computer network to be used by its students. The Okaw Vocational Center offers classes in Auto Mechanics, Building Trades, Electronics, Machine Shop, Food Services, Distributive Education, Office Machines, Secretarial Training, Commercial Art, and Health Occupations. Mr. Fesser stated his concern for improving and developing the Vocational Center's curriculum. He desired to meet the needs in the workplace as spelled out in
the "Secretary's Commission on Achieving Necessary Skills," known as SCANS (Olds & Pearlman, 1992) and "America 2000" (Holt, 1993). The surveys for this study were constructed to help answer Mr. Fesser's questions regarding general computer usage in business, industry and homes of the area.

Statement of the Problem

The problem the Okaw Area Vocational District faces is the transition from the traditional view of vocational education to a "School to Work" program view. The traditional vocational education view was to supply workers for an economy that relied on mass production of standardized products. The American workplace did not want workers who were creative or showed cleverness. Management was charged with these tasks. The organization and design of the American school shadowed that of the workplace. Workers were to use their hands and do very little thinking.

This mass production model no longer works in the school or workplace. With the increase of technology has come a new standard of skills required of workers in today's industry and businesses. Vocational graduates will need to analyze, reason, calculate, and troubleshoot like their college prep counterparts. They will also need a range of interpersonal skills (Stinson, 1994b).

The SCANS report ("Learning a Living", 1992) indicates that all students and workers need to have three fundamental skill areas. The first is Basic Skills such as reading,
writing, mathematics, listening, and speaking. The second is Thinking Skills like reasoning, analyzing, decision making, problem solving, and applying new data and skills. The third is Personal Qualities such as integrity, responsibility, self-esteem, and self-management.

The three fundamental skill areas are the foundation upon which both workers and students should be able to model the following five competencies: 1. Each person should be able to demonstrate ability to use resources by organizing and allotting time, money, and people. 2. The demonstration of interpersonal skills should be observed as the individual works with diverse groups, leads projects, negotiates, teaches, and serves customers. 3. Another competency that should be demonstrated is the ability to work with information. The individual should be able to demonstrate how information is found. The person should be able to show how to evaluate the information received. 4. The next competency that needs to be demonstrated is the understanding of systems. An understanding of and ability to improve organizational, social, and technological systems are important. 5. Finally, an understanding of technology must be demonstrated. This is the ability to select, apply, and maintain the technology. It is no longer important to just be able to turn a computer on and off or run a user friendly program. One must understand why the computer is doing what it is doing.
This study will basically help the Okaw Area Vocational Center answer questions dealing with two competencies. One deals with the understanding of technological systems. The second deals with technology usage in the community as a whole, whether in the home or the workplace.

This study was designed to research attitudes toward computer use, to determine what computer technologies are being used, and to assess how this information could help in improving the technology curriculum in area schools, as well as the Okaw Area Vocational Center.

The specific objectives of this study were to determine:

1. The value parents place on computer use.
2. The hardware that is available in the students' homes.
3. The software that is available in the students' homes.
4. The hardware in business and industry in the geographic area.
5. The software most common in area business and industry.
6. The possible curriculum improvement after assessing survey data.
Assumptions

The assumptions of this field experience are:

1. A need exists to determine the value parents place on computer education.

2. A need exists to determine what hardware and software is available in the home and workplace.

3. There is some validity in statements being made that high school students are not prepared for the entry level jobs.

4. Teachers surveyed in the vocational setting are representative of teachers in the three county area.

5. The 130 parents who responded to the survey, at the "College and Career Night," were a representative sample of parents in the three county area.

6. Businesses and industries surveyed depict a representative sample of business and industry in the three county area.

Limitations of the Study

This field study was limited by the following:

1. The geographical boundary of the Okaw Area Vocational Center district includes Bond, Fayette, and part of Effingham counties in Illinois.

2. The teacher survey was limited to 32 teachers involved directly or indirectly with the Okaw Area Vocational Center.
3. The surveys were restricted to the 210 parents who attended the Bond, Fayette, and Effingham county "College and Career Night" sponsored by the Regional Superintendent of Schools.

4. How the Okaw Area Vocational Center meets the need of the workplace, as described in "SCANS", is beyond the scope of this study.

Definition of Terms

**Hardware** - any physical element of a computer such as the central processing unit, disk drive, monitor, etc.

**Software** - programs that give instructions to the computer to perform a task.

**ACR** - Alliance for Curriculum Reform.

**Technology** - computer hardware or devices that are computerized.

**Hard Drive** - a hard disk made of ceramic which is able to store large amounts of information.

**CD Rom drive** - a device that will only read information from a compact disk.

**SCANS** - The Secretary’s Commission on Achieving Necessary Skills report from the U.S. Department of Labor.

**AMERICA 2000** - Six national education goals established in 1989 by President Bush and the nation’s governors.

**SCHOOL-TO-WORK** - Vocational education, job training which combines learning the skills required for real world jobs with strong academic study.
SREB - The Southern Regional Education Board.

DOS or MS-DOS - a computer program that handles basic input and output functions between the computer processing unit, monitor, keyboard, and disk drives.

National Information Infrastructure (or NII) - Yet-to-be-built information superhighway.
CHAPTER II
Rationale, Related Literature, and Research

Rationale

This study was needed to determine the extent to which computers are used in the three county area. It is common knowledge that factories and businesses use computers today. Teachers realize that many students have computers at home for entertainment or word processing. If school computer classes are to be most effective, they must compliment the computer hardware and software that is in the community. The survey completed by the regional superintendent indicated that School administrators believed if they knew what computer hardware and software were used in the homes and business of the area, it would help them in developing computer curriculum for their buildings. The administrators questioned the value parents placed on computer training. If parents truly believed that computer training were important, it would justify developing more extensive computer training classes.

Some administrators stated if the schools could find out what computer hardware was available in business and industry, the school staff members could train students on the same type of hardware. The same assumption was true with software used on the computer. If a given operational system or program was in common use across the area, districts could include it in the curriculum.
The author was unable to identify any studies in the area regarding computer technology. This study has been designed to supply a research base concerning computer hardware and software for the schools in the Okaw Area Vocational Center district. It also researched attitudes of parents, teachers, and business officials regarding computer use by students.

It is important that educators gain an understanding of the computer needs that exist in the business and industrial segment of the community. If the educators know the society’s needs, then they can determine what needs to be taught in the schools’ curricula. To improve the school curricula, the educators have to know what is in the homes and workplaces of the community. The best school-to-work programs, say experts, combine learning the required skills for the real world jobs with strong academic studies. They also have the participation of local businesses to ensure the relevancy of the curriculum (Stinson, 1994a).

Review of Literature and Research

The need for the development of computer technology in the public school is rooted in school reform. It appears that a major driving force behind reform and the development of technology in the school is industry. John Hunter of Tulsa Technology Center in Tulsa, Oklahoma, reported that pressure to reform is coming from the marketplace.
U.S. businesses are demanding highly skilled graduates and the high schools must respond. (Stinson, 1994a)

It is no secret that public schools are resistant to change. The truth is that the high school is the last to be responsive to reform and the integration of technology. In a study regarding seven elements of restructuring, conducted by the Alliance for Curriculum Reform in the spring of 1993, it was reported that only seven of the 3,400 high schools to respond had all seven restructuring elements completely in use. (Stinson, 1994a) Technology is one of the seven elements of restructuring. Those encouraging school reform believe technology is the key that will bring about the change. Schools that have done well in increasing achievement when working with heterogeneous groupings report that technology was indispensable to complete the job (Solomon, 1993).

When the nation’s governors met in Charlottesville, Virginia, in 1989, to establish goals for education, technology was listed to be part of those goals. When the goals were cut to six, technology was deleted. Frank B. Withrow, Technology Director for the Council of Chief State School Officers, believes it impossible to have any meaningful reform without the integration of technology. He feels this could be the nation’s last hope for an end to the cycle of economic poverty and last chance to productively
prepare a future competitive workforce (Stanzione & Thompson, 1993).

Richard W. Riley, Secretary of Education, says the "technology gap" is the difference between what society needs and the product the schools deliver. (Stanzione & Thompson, 1993) It is believed that this gap will prevent the schools of America from adequately equipping themselves to meet the needs of the 21st century. In spite of the fact that many influential persons verbally state the important role technology should play in restructuring, the discussions between curriculum reformers and technology developers have been characterized by hesitation. The problem appears to be a lack of communication between educational curriculum developers and those who are the producers of educational software. The curriculum specialists, who develop curriculum from a state level or the curriculum leadership of the local educational systems, are not open to technology as a tool, because most software does not meet curricula standards. They do not see it as a tool to help students achieve outcomes. While those who are developing software for educational purposes are doing it with little regard concerning the most up-to-date developments in curriculum, it appears that the two groups have never sat down and discussed what styles of software may or may not be appropriate in the curriculum.
Donavan Merck, technology manager of the California Schools, points out differences in curriculum frameworks (Stanzione & Thompson, 1993). The curriculum framework in California promotes "student centered" learning in contrast to "teacher centered" learning used by most technology developers. Little of the current software available is flexible enough to allow the teacher to be professionally a part of the lesson. The result is that the teacher uses technology as supplemental material for the class. Until state departments of education finance the cost of software for curriculum development, Merck believes, education will not have the quality of software needed. The software will have to support innovative classroom methods that require students to think before curriculum reformers will see technology as a tool (Stanzione & Thompson, 1993).

Stanzione and Thompson (1993) reported that David Moursund, of the International Society of Technology in Education, sees the biggest concern to be that the American educational system was not developed to handle swift change. Technology is changing faster than present educational systems can handle. Innovations of curriculum have been viewed by well meaning administrators as an amount beyond what is needed. If technology is to impact reform, Moursund believes, it must be integrated into the curriculum. That can only occur if teachers, material developers, and
assessment experts are part of the team and "buy into" change.

Some educational leaders are hoping that textbook companies and software producers see themselves as partners in education rather than distributors of educational materials. Withrow, according to Stanzione and Thompson (1993), believes that if technology is to be integrated into a gradually developing curricula, software producers must assure state boards, local boards, and curriculum developers that the software programs have a proven record with research to support that record.

In the southeastern part of the United States, nine states are in the process of making technology part of their curriculum guideline. These states are developing the ground-rules that will integrate technology into the schoolroom. This is a project between the Bell South Corporation and The Southern Regional Education Board (SREB). Robert E Stoltz, of SREB, reports that each state intends to set up its educational goals. Next, each state will determine the technologies that will best help it reach those goals. Finally, each state hopes to find industries that will become partners in financing the cost of hardware and software to maintain the curriculum (Lewis, 1994).

Disparity is a key problem with technology according to Lyle Hamilton of the National Educational Association (Stanzione & Thompson, 1993). Poor schools may have as
their only high-tech equipment a metal detector at their door. Many poor districts do not have a phone jack in each classroom. It is not possible for large scale technologically based reform to happen in poor school districts lacking major sources of funding.

There are pieces of legislation that will have an effect on how schools will become part of the informational highway. These pieces of legislation include S.4: National Competitiveness Act of 1993, H.R. 1757: National Information Infrastructure Act, S. 1040: Technology For Education Act, and H.R. 3130: Improving America’s School Act (Graumann, 1994).

S. 4 and H.R. 1757 would provide school funding to connect to area networks as well as Internet. These bills would provide for the purchase of hardware, software, and training for both librarians and teachers. S.1040 would allow for the creation of a U.S. office of Educational Technology. This office would help direct the course for national policies and practices concerning educational technology. H.R. 3130 would reinstate the Elementary and Secondary Education Act which provided funding for gifted, bilingual, and disabled students. Senator Jeff Bingaman of New Mexico believes that without such a bill as S. 1040, America’s schools will remain technologically illiterate (Stanzione & Thompson, 1993).
In "The Machine in the Classroom" (Snider, 1992), one finds a history of how machines have been introduced into schools since 1900. Each machine was to have an impact on education, but none have really been integrated into the curriculum. Some say computers are the same. The author, Robert C. Snider (1992), shows how technology has been introduced to the schools with little success. Some technology was very short lived. One educational leader believes this to be so because technology was purchased before adequate planning took place. Most effort for educational reform is centered around the camera and the computer. They are both tools of our time. They can be found separately or together.

Technology involves two parts, a product and the process it uses. Both offer many possibilities for use in the schools. John Naisbitt explains that new technology goes through three phases in his book, Megatrends, according to Peck and Dorricott (1994). It is used in an existing market. Then, it is refined to take the place of existing technologies or replace with new. In the last phase, new uses are found for the technology in relationship to the possibilities that exist for a given technology. Some believe that education has just entered this last phase with computers and other high-tech equipment.

The educators who are searching for new uses are looking for a paradigm shift. These teachers think about
their programs by using a technological process to define their needs and create fitting solutions. Peck and Dorricott (1994) report that they assess future demands on their graduates and the characteristics of their students and the community. They consider what is known about the learning process, and they investigate the tools and techniques available. Having completed their assessment, they design several alternatives. Educators at stage three understand that it is what the student does that counts. Only after they determine what the students must be doing, do they determine appropriate roles for the professionals and the technological tools. These educators methodically develop and devise a plan for a new style of school. It is developed for learning rather than teaching. It is student centered rather than teacher centered.

Currently computers are available to all levels of society. In a study of "Computers in American Schools", it was found that 82% of the affluent homes had computers compared to 48% in middle income family homes. Only 14% of low income homes had computers. It seems that the problem is not getting access to computers, because most schools have computers. The problem appears to be the way in which the computers are used. In the wealthier schools it seems that the computers are used with programs that require higher order thinking skills. In the middle and lower class schools, the computers are used with remedial skill
development, drill and practice type programs. When it comes to equity in education, the computer has only made the problem more visible. The problem stems from inadequate inservice of teachers. Teacher training must be lengthy. It is this training that is the key to evening the results between the rich and poor (Peck & Dorricott, 1994).

In today's classrooms, students can have the world literally at finger tips through Internet, a network of more than 5,000 networks tied together. These networks connect all seven continents to any computer that has a subscription to the service. The cost of services depends on the kinds of services that are used. Some are free, such as those from universities (Dyrli, 1993).

Many school systems have worked to pass tax levies to support technology in the school. In most cases, the schools must show the public the relationship between education and the workplace if the levy succeeds. The community must be made aware of the skills students need to succeed in the global workplace. The district superintendent's support is key in passing this type of campaign. The school officials must know the district's demographics and needs of the community (Stinson, 1993).

The use of computers in the classroom falls on the shoulders of the teacher. It is important that teachers become more discriminating in the proper use of informational technology in the curriculum. Some students
have a great deal of interest in technology; others do not feel comfortable with high tech tools. Teachers will find it necessary to have the ability to meet the needs for both types of students.

Much debate is occurring in magazines and other educational publications concerning the public schools being connected to the informational highway. Frequent articles can be found in *Education Week* such as one by Peter West (1994) urging school access to data networks. Educational technology experts believe that computer networks will be open for all to use. This network highway will actually be a toll road available to all students as a right. "The unique thing about this country is that we pioneered universal education. We must now [pioneer] universal access to all the data bases of the world." notes Frank Withrow (Salvador, 1994). It is obvious that technology is exciting and promises much, but some districts have been "burnt" on purchases of technology. When one reads the publications, it is apparent that districts must proceed with caution.

**Uniqueness of the Study**

The results of this study are valid for three rural counties in south, central Illinois. The study was conducted within predetermined geographical boundaries. These intentional limits were followed to determine specifically the needs of the Okaw Vocational Area Center.
This information would be specifically useful to school districts served by Okaw Area Vocational Center.

This study is focused on technology in relationship to the community and the school. The information in this study has created a foundation upon which the Okaw Vocational Center, as well as the seven districts it serves, can build technology programs that meet the needs of the area. Articles are appearing in magazines stating that school personnel must know the results they want to achieve from technology programs. Knowing what is available in the homes of the students is valuable. It is important to know what technology is in the workplace. The school can then better train students in the technology that is available in the workplace.
Chapter III
Design of the Study

General Design

This field experience was based on data collected in surveying populations (vocational teachers, senior parents, and businesses and industries) within the Okaw Area Vocational District. The surveys asked different questions of each group. Each survey was designed to indicate hardware and software preferences. Each was to reflect that population's views toward computer use.

Survey instruments were developed to sample three different populations within the Okaw Area Vocational Center area. One survey was designed to question teachers regarding their views of computer literacy and curriculum (Appendix A). The second survey was designed to question parents of students within the districts that participate in Okaw Area Vocational Center. This survey was designed to determine what hardware and software were available in the homes of students and to identify parent attitudes concerning the value of computer education (Appendix B). The third and final survey was designed to question representatives of business and industry in the area concerning computer technology in the workplace. This survey was designed to identify what hardware, software, entry level skills, and on the job training was available in the area (Appendix C).
The first group surveyed was teachers directly or indirectly involved in Okaw Area Vocational Center. Each teacher surveyed was asked to rate his/her opinion of statements made. Each question was rated on a scale of A through E: A = strongly agree, B = agree, C = undecided, D = disagree, E = strongly disagree. A positive response to each question was determined by adding the A and B responses to each question together. C,D, or E responses were considered as negative responses. The survey asked twenty-eight questions. The questions inquired about skills high school students should master (Appendix A).

The second survey gathered data from parents of high school seniors. The survey was done at the College and Career Night conducted by the Office of the Regional Superintendent of Schools of Bond, Fayette and Effingham Counties. This survey instrument began with 10 yes or no questions. One question asked if parents had a computer in their home. Other questions asked if parents believed the computer helped their student with school work. Some questions were asked in regard to the value of computer skills. One question asked the amount of time a student used a computer each week. Finally, the twelfth question asked parents what brand of computer they had at home. If the parent answered this question "no", the survey was completed. If a parent answered "yes", the parent was to
answer 19 additional questions regarding hardware and software available in their home (Appendix B).

The final survey was of business and industry within the Okaw Area Vocational Center area. This survey consisted of 21 questions answered yes or no and one multiple choice question. The final questions asked for additional skills required by their company. This survey asked questions concerning hardware and software used by the business or industry. Other questions asked in regards to on-the-job training, use of network, and expectations of entry level people (Appendix C).

Descriptive statistics such as percentages and totals were used to analyze the responses given to the questions asked in the surveys. Correlations were made to determine relationships between some of the responses to questions.

Sample and Population

Three populations were studied in this field study. Each of these population groups existed within the Bond, Fayette, and part of Effingham counties in Illinois served by Okaw Area Vocational Center. One population was teachers directly or indirectly related to the Okaw Area Vocational Center (Appendix A). The second population was parents of high school students who attend schools that are part of Okaw Area Vocational Center (Appendix B). The last population surveyed was business and industry
representatives within the districts that compose Okaw Area Vocational Center (Appendix C).

Data Collection and Instrumentation

Once this field study was limited within the area of the Regional Superintendent of Bond, Fayette, and Effingham Counties, working with the Okaw Area Vocational Center became a natural focus. The researcher, in talking with Mr. Darrell Fesser, Director of Okaw Area Vocational Center, realized the information gathered for a study would also be helpful to him for developing his program. Each survey instrument was developed by the researcher. The questions were developed with the approval of Mr. Fesser to assure relevance.

Questions were created to be evaluated by descriptive statistics that reflected similar information located in other studies. Questions were asked to reflect value and preferences desired. Each of the surveys was piloted with three to six persons. Piloting enabled the researcher to reword certain questions to enhance their clarity and assisted in revising directions given to those asked to complete the surveys. Each survey was printed on a form designed to accommodate computer scoring.

Because these surveys were created just for this field experience, data involving statistical validity and reliability are not available. Face validity seems well supported based on sound judgement of sources used to
construct the surveys. The high rate of survey returns also supports face validity.

Mr. Fesser's suggestions were valuable with regard to sampling the populations. He thought it would be important to survey teachers directly and indirectly involved with Okaw Area Vocational Center. This was accomplished by handing out surveys at a regional meeting with teachers involved from participating districts. Thirty-two surveys were completed by this group which represented a 100% return (Appendix A).

He suggested sampling parents at the College and Career Night sponsored by the Regional Superintendent's Office. Arrangements were made through that office to have the surveys handed out at the main entrance with other information and registration. One hundred and thirty of 210 survey instruments were returned (Appendix B). There was a 62% return of surveys.

The final survey was completed by members of the business and industry community within the Okaw Area Vocational Center area. Seventy businesses and industries were surveyed by the researcher. This was accomplished by going directly to the businesses and industries in the three county area. Sixty-seven of the 70 businesses and industries contacted responded to the survey. Sixty-seven responses represents a 96% return of business and industry survey instruments (Appendix C).
Data Analysis

Descriptive statistics were used in this study. They were available as totals, percentages, frequencies, and correlational procedures to analyze the responses to the questionnaires.

The data collected in this study were analyzed with the assistance of the Eastern Illinois University computer laboratory. The results were reported back to the surveyor on the Eastern Illinois University Survey Questionnaire Report. This information was then used to give statistical meaning to responses. Most of the statistical figures were rounded off to the nearest whole percentage.
Chapter IV
Results

Teacher Surveys

The following 2 groups of teachers were surveyed at a regional meeting for teachers of Okaw Area Vocational Center and teacher indirectly involved from districts which participate in the vocational program. A hundred percent of the teacher surveys where returned. The teacher survey asked questions in the areas of hardware, software, and curriculum development. A table for each of these areas was developed showing either support for or non-support for each question.

Table 1
Teacher Survey

<table>
<thead>
<tr>
<th>Hardware Questions</th>
<th>Supported</th>
<th>%</th>
<th>Unsupported</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Industry uses basically IBM computers.</td>
<td>27</td>
<td>84%</td>
<td>5</td>
<td>16%</td>
</tr>
<tr>
<td>12. Students should be familiar with more than one brand of computer.</td>
<td>18</td>
<td>56%</td>
<td>14</td>
<td>44%</td>
</tr>
<tr>
<td>14. High school graduates need an understanding of how to use a modem.</td>
<td>18</td>
<td>56%</td>
<td>14</td>
<td>44%</td>
</tr>
<tr>
<td>15. Computer fax instruction is necessary for high school students.</td>
<td>15</td>
<td>47%</td>
<td>17</td>
<td>53%</td>
</tr>
<tr>
<td>27. High school students should have an understanding of how to use a CD ROM.</td>
<td>27</td>
<td>84%</td>
<td>5</td>
<td>16%</td>
</tr>
<tr>
<td>28. High school students should have an understanding of how to use a backup drive.</td>
<td>29</td>
<td>91%</td>
<td>3</td>
<td>9%</td>
</tr>
</tbody>
</table>
In question 1, which deals with teachers' opinion concerning the brand of computer basically used by industry, it is not surprising that 84% supported IBM (Table 1). Business and industry representatives surveyed said 31% (Table 10) actually have IBM computers. Fifty-seven percent of business and industry have IBM compatible. In total 88% use IBM or IBM compatibles. (Table 10).

All hardware named, except for the computer fax, had support of 56% level or more (Table 1). It would seem that teachers make a big distinction between the phrases an "understanding of" and "instruction is necessary". When the words "instruction is necessary" were used, the percentage points dropped nine points below that of other forms of hardware to 47% (Table 1).

When responding to questions about students being familiar with more than one brand of computer or understanding how to use a modem, teachers gave a 56% (Table 1) support level. Teachers supported the understanding of how to use a CD ROM at an 84% level. Student understanding of a backup drive was supported by teachers at a 91% level (Table 1).

Table 2 indicates that teachers believe productive programs are important for student learning. Teachers recognized the benefits of word processors, data bases, and
Table 2
Teacher Survey

<table>
<thead>
<tr>
<th>Software Questions</th>
<th>Support</th>
<th>%</th>
<th>Non-Support</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. WordPerfect is the number one word processing program.</td>
<td>23</td>
<td>72%</td>
<td>9</td>
<td>28%</td>
</tr>
<tr>
<td>13. Students should be knowledgeable of MS DOS.</td>
<td>22</td>
<td>69%</td>
<td>10</td>
<td>31%</td>
</tr>
<tr>
<td>18. High school students should have a good understanding of MS DOS.</td>
<td>24</td>
<td>75%</td>
<td>8</td>
<td>25%</td>
</tr>
<tr>
<td>19. High school students should have operational knowledge of WordPerfect.</td>
<td>25</td>
<td>78%</td>
<td>7</td>
<td>22%</td>
</tr>
<tr>
<td>20. High school students should have operational knowledge of Lotus or similar spreadsheet.</td>
<td>23</td>
<td>74%</td>
<td>9</td>
<td>26%</td>
</tr>
<tr>
<td>21. High school students should have operational knowledge of dBase.</td>
<td>22</td>
<td>69%</td>
<td>10</td>
<td>31%</td>
</tr>
<tr>
<td>22. High school students should have operational knowledge of an integrated program such as MS Works.</td>
<td>23</td>
<td>72%</td>
<td>9</td>
<td>28%</td>
</tr>
<tr>
<td>23. High school students should have programming knowledge of Basic</td>
<td>14</td>
<td>44%</td>
<td>18</td>
<td>56%</td>
</tr>
<tr>
<td>24. High school students should have programming knowledge of Pascal.</td>
<td>5</td>
<td>16%</td>
<td>27</td>
<td>84%</td>
</tr>
<tr>
<td>25. High school student should have programming knowledge of Fortran.</td>
<td>4</td>
<td>13%</td>
<td>28</td>
<td>87%</td>
</tr>
<tr>
<td>26. High school student should have programming knowledge of Cobol.</td>
<td>4</td>
<td>13%</td>
<td>28</td>
<td>87%</td>
</tr>
</tbody>
</table>
spreadsheets, but they saw little value in programming languages such as Pascal, Fortran, or Cobol (Table 2). Production programs were supported between the 69% and 78% levels.

The programming language programs like Pascal, Fortran, and Cobol received percentile rankings between 13% and 16%. These low support levels for programming languages indicate that teachers placed little value on students gaining knowledge in programming languages. Teachers indicated that students need a knowledge of MS DOS at a 69% (Table 2) support level, while only supporting the knowledge of the Basic programming language at 44%.

Table 3 reports information with regards to teachers' support for questions related to curriculum development. Table 3 indicates that teachers believe computer technology and usage should be a course that is taught, while computer literacy should be integrated into the whole school curriculum. It further indicates that teachers believe keyboarding skills are important to know and that 59% of the teachers believed keyboarding skills should be taught on a computer rather than a typewriter. Other curriculum questions dealt with skills that are important to the work world. Job readiness, hands on training, and work place learning were all rated at a support level of 80% or higher (Table 3). This indicated teachers believe in the importance of work place learning experiences for students.
<table>
<thead>
<tr>
<th>Teacher Questions</th>
<th>Supported %</th>
<th>Non-supported %</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Computer technology and usage should be a required subject for all high school students.</td>
<td>94%</td>
<td>6%</td>
</tr>
<tr>
<td>3. Computer literacy should be integrated with the high school curriculum.</td>
<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td>5. High school graduates should possess strong skills in communications and interpersonal relationships.</td>
<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td>6. Intradepartmental integration is an important aspect of curriculum development.</td>
<td>91%</td>
<td>9%</td>
</tr>
<tr>
<td>7. Math and reading skills are important aspects for employment in today's curriculum.</td>
<td>97%</td>
<td>3%</td>
</tr>
<tr>
<td>8. Educational theory, job readiness skills, and hands on applications should be taught in today's curriculum.</td>
<td>97%</td>
<td>3%</td>
</tr>
<tr>
<td>9. A work place learning experience should be an important aspect for a integrated high school curriculum.</td>
<td>88%</td>
<td>12%</td>
</tr>
<tr>
<td>10. High school students should experience hands on training in the work environment.</td>
<td>81%</td>
<td>19%</td>
</tr>
<tr>
<td>11. Computer literacy and basic keyboarding skills should be developed before high school.</td>
<td>56%</td>
<td>44%</td>
</tr>
<tr>
<td>16. Basic keyboarding skills should be taught on the computer rather than a typewriter.</td>
<td>59%</td>
<td>41%</td>
</tr>
<tr>
<td>17. High school students should possess keyboarding skills.</td>
<td>97%</td>
<td>3%</td>
</tr>
</tbody>
</table>
Parent Surveys

Tables 4 through 7 were developed from the Computer Survey for Parents in Bond, Fayette, and Effingham Counties. This survey was taken at the 1994 College and Career Night conducted by the Office of the Regional Superintendent. The return rate for the parent survey was 62% percent. These tables deal with hardware, software, usage, and parental opinion toward computers.

Table 4
Computer Brand and Usage in Homes

11. What number of hours best weekly describes the amount of time your high school student uses a computer?

<table>
<thead>
<tr>
<th>Number</th>
<th>Percent</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>55</td>
<td>42%</td>
<td>(a) Less than 1 hour a week</td>
</tr>
<tr>
<td>66</td>
<td>51%</td>
<td>(b) More than 1 hour, but less than 10 hours</td>
</tr>
<tr>
<td>6</td>
<td>5%</td>
<td>(c) More than 10, but less than 15 hours</td>
</tr>
<tr>
<td>1</td>
<td>1%</td>
<td>(d) More than 15, but less than 20 hours</td>
</tr>
<tr>
<td>2</td>
<td>1%</td>
<td>(e) 20 hours or more</td>
</tr>
</tbody>
</table>

12. What type of computer is available in your home?

<table>
<thead>
<tr>
<th>Number</th>
<th>Percent</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>70</td>
<td>53.8%</td>
<td>(a) None</td>
</tr>
<tr>
<td>45</td>
<td>35.4%</td>
<td>(b) IBM or IBM compatible computer</td>
</tr>
<tr>
<td>3</td>
<td>2.3%</td>
<td>(c) Apple series computer</td>
</tr>
<tr>
<td>4</td>
<td>3.1%</td>
<td>(d) Macintosh</td>
</tr>
<tr>
<td>7</td>
<td>5.4%</td>
<td>(e) Other</td>
</tr>
</tbody>
</table>

The answers to question 11 in Table 4 indicate the amount of time parents believe their student spends with a computer each week. Responses indicated that 42% of high school students spend less than one hour a week using a computer. Question 11 also indicates that 51% of high school students use a computer one to ten hours a week. This information raises some interesting questions when one considers that only 46% (Table 5) of the homes surveyed had
computers. Five percent of those surveyed used the computer 10 to 15 hours a week while 1% uses it 15 to 20 hours a week. Only 1% of high school students uses their computer more than 20 hours a week.

Fifty-four percent (Table 4) of the homes of Bond, Fayette, and Effingham Counties did not have a computer as of the Spring, 1994. Of the 130 surveys returned, 63 survey forms or 46% indicated ownership of a home computer (Table 5). This survey indicated that 35% (Table 4) of the homes had an IBM or an IBM compatible computer. Only 2% of the homes had Apple series computers, while 3% had a Macintosh computer. All other brands made up the remaining 5% (Table 4) of computers in the homes.

Table 5 gives parental perceptions of computer technology and use. Forty-six percent of the homes have computers (Table 5), while 54% do not have computers. These figures are interesting when compared with the current literature. According to the Computers in American Schools study (McAdoo, 1994), 82% of high-income 11th graders and 48% of middle-income 11th grade students have home computers, while just 14% of low-income students in that grade have a computer at home. This would indicate that the Bond, Fayette, and Effingham counties area appears to be near the national findings.

Parent responses showed 54% percent (Table 5) of their high school students use computers to do their assignments.
Parents believe, at a 90% level, the use of a computer would or does improve school work quality. Students were supported at a 51% level to do homework at the public library or in the computer laboratory. Ninety-five percent, of the parents who answered question five (Table 5), indicated that they believed all high school students need to learn basic computer skills. Parents believed it was important for their student to develop marketable computer skills at a 90% level and view the computer as a common everyday tool.

Answers to question one from Table 5 was matched with question twelve in Table 4. When the responses were tabulated 54% answered both questions with a "No". Those who answered "Yes" to both questions were 46% of the surveys returned. Because of this consistency it can be assumed that the figures with regard to brands of computers in the homes are accurate.

Seventy-four percent (Table 5) of the parents indicated their students displayed interest in working more with computers. Only 32% encouraged their student to buy his own computer. Eighty-seven percent of the parents felt that computer skills are necessary to survive in today's work world. Table 5 indicates that parents are very supportive in encouraging their high school students to develop computer skills to the highest level possible. The literature indicates that inequities exist in computer skills acquired due to economic class (McAdoo, 1994).
It appears that computers may be making the technology gap bigger.

Table 5

**Parent View of Computer Technology and Use**

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>%</th>
<th>No</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Do you have a computer in your home?</td>
<td>61</td>
<td>46.2%</td>
<td>69</td>
<td>53.8%</td>
</tr>
<tr>
<td>2. Does your high school student use a computer to do his/her assignments?</td>
<td>70</td>
<td>54%</td>
<td>59</td>
<td>45%</td>
</tr>
<tr>
<td>3. Do you believe the use of a computer would or does improve your student’s work quality?</td>
<td>117</td>
<td>90%</td>
<td>13</td>
<td>10%</td>
</tr>
<tr>
<td>4. Do you believe it is important for your student to develop marketable computer skill?</td>
<td>117</td>
<td>90%</td>
<td>12</td>
<td>9%</td>
</tr>
<tr>
<td>5. Do you believe all students need to learn basic computer skills?</td>
<td>124</td>
<td>95%</td>
<td>6</td>
<td>5%</td>
</tr>
<tr>
<td>6. Did you encourage your high school student to buy his/her own computer for doing homework?</td>
<td>41</td>
<td>32%</td>
<td>87</td>
<td>67%</td>
</tr>
<tr>
<td>7. Do you encourage your high school student to spend time at the public library or computer laboratory to do homework?</td>
<td>66</td>
<td>51%</td>
<td>64</td>
<td>49%</td>
</tr>
<tr>
<td>8. Do you believe that computers are common everyday tools in life today?</td>
<td>122</td>
<td>94%</td>
<td>7</td>
<td>6%</td>
</tr>
<tr>
<td>9. Do you view computer skills necessary to survive in today’s work world?</td>
<td>113</td>
<td>87%</td>
<td>17</td>
<td>13%</td>
</tr>
<tr>
<td>10. Does your student display interest in working more with computers?</td>
<td>96</td>
<td>74%</td>
<td>34</td>
<td>26%</td>
</tr>
</tbody>
</table>
Table 6

Hardware Questions Asked of Parents Having a Computer

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>%</th>
<th>No</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>21. Does your computer have more than one size drive?</td>
<td>36</td>
<td>57%</td>
<td>27</td>
<td>43%</td>
</tr>
<tr>
<td>22. Does your computer have 128k or less?</td>
<td>22</td>
<td>36%</td>
<td>39</td>
<td>64%</td>
</tr>
<tr>
<td>23. Does your computer have 128k or more, but less than one meg?</td>
<td>30</td>
<td>49%</td>
<td>31</td>
<td>51%</td>
</tr>
<tr>
<td>24. Does your computer have one meg or more of memory?</td>
<td>45</td>
<td>75%</td>
<td>15</td>
<td>25%</td>
</tr>
<tr>
<td>25. Does your computer have a hard drive?</td>
<td>48</td>
<td>79%</td>
<td>13</td>
<td>21%</td>
</tr>
<tr>
<td>26. Does your computer have a CD Rom?</td>
<td>15</td>
<td>24%</td>
<td>47</td>
<td>76%</td>
</tr>
<tr>
<td>27. Does your computer have a modem?</td>
<td>27</td>
<td>44%</td>
<td>35</td>
<td>56%</td>
</tr>
<tr>
<td>28. Does your computer have fax capabilities.</td>
<td>13</td>
<td>21%</td>
<td>49</td>
<td>79%</td>
</tr>
</tbody>
</table>

The computer hardware and software questions for parents were only answered by the 63 who had computers in their home. These 63 parents represented 46% of those surveyed. Tables 6 and 7 show how parents who had a computer in the home responded. Table 6 reflects hardware available for students in their home. Question one in Table 6 asked if their computer had more than one size disk drive. Fifty-seven percent of the parents said they had more than one size drive. When parents were asked about how much memory their computer had, three possible choices were given. The three choices received a total of 97 "yes" responses. The total of the three is so large that there are only three possible explanations: Most parents don’t
understand the units (ie. kilobyte, megabyte, etc.), most parents didn’t understand the domain of the values asked about, or some families have more than one computer. When Table 6, question 24 lists 45 yes responses for computers with one meg or more of memory and that is compared to 45 IBM or IBM compatible computers in Table 4, question 12b, some rational results are available. It makes sense 45 IBM computers would have one or more meg or memory.

Table 7
Software Questions Asked of Parent with Computers
===================================================================
<table>
<thead>
<tr>
<th>Questions</th>
<th>YES</th>
<th>%</th>
<th>NO</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>29. Do you have a word processing program?</td>
<td>54</td>
<td>87%</td>
<td>8</td>
<td>13%</td>
</tr>
<tr>
<td>30. Do you have WordPerfect?</td>
<td>29</td>
<td>47%</td>
<td>33</td>
<td>53%</td>
</tr>
<tr>
<td>31. Do you have Apple or MS Works?</td>
<td>28</td>
<td>45%</td>
<td>34</td>
<td>55%</td>
</tr>
<tr>
<td>32. Do you have a spreadsheet program?</td>
<td>45</td>
<td>76%</td>
<td>14</td>
<td>24%</td>
</tr>
<tr>
<td>33. Do you have Lotus?</td>
<td>22</td>
<td>37%</td>
<td>37</td>
<td>63%</td>
</tr>
<tr>
<td>34. Do you have Apple or MS Works?</td>
<td>23</td>
<td>41%</td>
<td>33</td>
<td>59%</td>
</tr>
<tr>
<td>35. Is your spreadsheet another?</td>
<td>16</td>
<td>31%</td>
<td>35</td>
<td>69%</td>
</tr>
<tr>
<td>36. Do you have a data bases program for your computer?</td>
<td>43</td>
<td>72%</td>
<td>17</td>
<td>28%</td>
</tr>
<tr>
<td>37. Is your database program a works program?</td>
<td>31</td>
<td>54%</td>
<td>26</td>
<td>46%</td>
</tr>
<tr>
<td>38. Is your database program dbase?</td>
<td>16</td>
<td>31%</td>
<td>36</td>
<td>69%</td>
</tr>
<tr>
<td>39. Is your database program another?</td>
<td>11</td>
<td>26%</td>
<td>32</td>
<td>74%</td>
</tr>
</tbody>
</table>

It is possible that 48 of the 63 computers have a hard drive (Table 6), if there are 45 IBM and 4 Macintosh
computers in the group (Table 4). Then this would indicate that 79% (Table 6) of the computers have a hard drive. Twenty-four percent had a CD Rom. Forty-four percent of the home computers had a modem. Only 21% of the home computers had fax capabilities. It appears that overall new technology in hardware is making slow gains in the area.

Table 7 lists questions asked of parents in regard to software used on their home computer. When asked if the parent had a word processing program for their home computer, the response indicated that 87% of the home computers have a word processing program to use with it. Survey results revealed that 47% of the homes have WordPerfect as a word processor. In response to the use of either Apple or MS Works, it was found that 45% had these programs for use. When one adds together these two percentages, one comes up with the figure that 92% of the homes have computers with a word processor. This means that 8% of the homes with some type of computer do not have word processing capabilities.

Spreadsheet programs can be found in 76% (Table 7) of the homes with computer. Table 7 also indicates that 72% of the homes have a data base. It appears that many of the homes have more than one program that will do spreadsheets or data base activities.
Business and Industry Surveys

The computer survey for business and industry was completed in two days by going to 70 different businesses and industries in five communities within the Okaw Area Vocational Center region. Responses were collected from 67 different businesses or industries. Tables 8 through 10 show the responses from the Business and Industry Computer Survey. Table 8 deals with software used by the businesses and industry in the Bond, Fayette, Effingham Counties of Illinois.

Table 8
Computer Survey of Business and Industry

<table>
<thead>
<tr>
<th>Software Questions</th>
<th>Yes</th>
<th>%</th>
<th>No</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. High school graduates need to have an understanding of DOS.</td>
<td>55</td>
<td>82%</td>
<td>12</td>
<td>18%</td>
</tr>
<tr>
<td>2. Does your company use WordPerfect?</td>
<td>21</td>
<td>31%</td>
<td>46</td>
<td>69%</td>
</tr>
<tr>
<td>3. Does your company use Windows?</td>
<td>31</td>
<td>46%</td>
<td>35</td>
<td>54%</td>
</tr>
<tr>
<td>4. Does your company use Microsoft works?</td>
<td>21</td>
<td>31%</td>
<td>45</td>
<td>68%</td>
</tr>
<tr>
<td>5. Does your company use Professional Write?</td>
<td>11</td>
<td>17%</td>
<td>55</td>
<td>83%</td>
</tr>
<tr>
<td>6. Does your company use Apple Works?</td>
<td>2</td>
<td>3%</td>
<td>64</td>
<td>97%</td>
</tr>
<tr>
<td>7. Does your company use Auto Cad software</td>
<td>8</td>
<td>12%</td>
<td>57</td>
<td>88%</td>
</tr>
<tr>
<td>8. Does your company use Lotus 1-2-3?</td>
<td>26</td>
<td>39%</td>
<td>41</td>
<td>61%</td>
</tr>
</tbody>
</table>

When asked if high school graduates should have an understanding of DOS, 82% of businesses and industries surveyed supported this question. Windows is the most popular software program in the three county area with 46%
(Table 8) of the businesses and industries having Windows on their computers. Lotus 1-2-3 was the second most popular with 39% using it with their computers. Microsoft Works was used by 31% of those surveyed, while 31% used WordPerfect. Professional Write was used by 17% of those surveyed. AutoCad software was used by 12% of the businesses and industries of the area. Only 3% of those surveyed used Appleworks. If the figures seem low, one must remember that many companies have custom designed software programs to meet specific business needs.

Table 9

Computer Survey of Business and Industry

<table>
<thead>
<tr>
<th>Hardware Questions</th>
<th>Yes</th>
<th>%</th>
<th>No</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>9. Does your company have a computer fax?</td>
<td>32</td>
<td>48%</td>
<td>35</td>
<td>52%</td>
</tr>
<tr>
<td>10. Does your company use a computer fax?</td>
<td>25</td>
<td>37%</td>
<td>42</td>
<td>63%</td>
</tr>
<tr>
<td>11. Does your company have a separate fax machine?</td>
<td>63</td>
<td>94%</td>
<td>4</td>
<td>6%</td>
</tr>
<tr>
<td>12. Does your company have a modem for its computer?</td>
<td>56</td>
<td>84%</td>
<td>11</td>
<td>16%</td>
</tr>
<tr>
<td>13. Does your company have computer training for entry level people?</td>
<td>28</td>
<td>42%</td>
<td>39</td>
<td>58%</td>
</tr>
<tr>
<td>14. Does your company use a CD ROM?</td>
<td>17</td>
<td>26%</td>
<td>48</td>
<td>74%</td>
</tr>
<tr>
<td>15. Does your company require printer use?</td>
<td>65</td>
<td>97%</td>
<td>2</td>
<td>3%</td>
</tr>
<tr>
<td>16. Do entry level people need to have an understanding of telecommunications?</td>
<td>32</td>
<td>48%</td>
<td>35</td>
<td>52%</td>
</tr>
<tr>
<td>21. Does your company use a computer network?</td>
<td>44</td>
<td>66%</td>
<td>22</td>
<td>33%</td>
</tr>
</tbody>
</table>
Table 9 contains the hardware questions asked in the Computer Survey of Business and Industry.

Forty-eight percent of the companies have computer fax capabilities, but only 37% use it. Ninety-four percent of the companies indicated they have separate fax machines. Six percent did not have a separate fax machine. Eighty-four percent of the companies have a computer modem. Twenty-six percent of the business and industries already are using CD Rom for data storage. Three percent did not have a printer with their computer. Ninety-seven percent use a printer with their computer. Sixty-six percent of business and industry are connected to a computer network.

The survey also revealed that 48% of those surveyed believe that entry level people need to have a basic understanding of telecommunications. Forty-two percent of the companies provide computer training for entry level employees.

Business and industry indicated that they prefer IBM or IBMcompatible machines (Table 10). Thirty-one percent prefer IBM computers, while 53% preferred the IBM compatibles. Eighty-eight percent prefer IBM or IBM compatible machines; 3% preferred Macintosh; 9% preferred other brands.

Business and industry believes that entry level employees should be familiar with IBM or IBM compatible computers. The information in Table 10 should send a
strong, clear message that IBM computer skills are important in the workplace.

Table 10

Computer Survey of Business and Industry

<table>
<thead>
<tr>
<th>Computer Brand Preferred</th>
<th>#</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBM</td>
<td>20</td>
<td>31%</td>
</tr>
<tr>
<td>IBM Compatible</td>
<td>37</td>
<td>57%</td>
</tr>
<tr>
<td>Macintosh</td>
<td>2</td>
<td>3%</td>
</tr>
<tr>
<td>Apple II</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
<td>9%</td>
</tr>
</tbody>
</table>

Synthesis of Questionnaire Results

Conclusions that can be drawn from the surveys which includes adding the businesses that prefer IBM to those who prefer IBM compatible. When one adds the two percentages together, 88% (Table 10) of business and industry computers are IBM or compatible. If 88% prefer IBM or compatible computers then one can assume that the same percentage has either IBM or compatible computers.

In Table 10, one finds that 37 computers are IBM compatible. This 37 represents 65% of the 57 computers that are IBM or compatible. If 65% of the computers that are
considered IBM are compatible, then compatible computers are used in greater numbers because they are less expensive and yet sufficient to meet business and industries needs. If compatible computers are good enough for business they should be acceptable for schools. If the school can buy IBM computers for the same money or almost the same money as compatible they should buy the IBM.

If business and industry representatives of Bond, Fayette, and Effingham Counties believe strongly that entry level employee (Table 10) should be familiar with IBM computers, then they expect entry level people to have IBM computer skills. The foundation of these skills would include a knowledge and understanding of MS DOS, Windows, WordPerfect, Microsoft Works, and Lotus (Table 8). One can conclude from Table 8 that 79% of businesses and industries in Bond, Fayette, and Effingham Counties are using MS Works, WordPerfect, or Professional Write software for word processing. The conclusion can be made that students should know how to use modems and fax machines (Table 9).

In Table 3, titled "Teacher Survey Questions Related to Curriculum Development in School to Work Program," one can draw the conclusion that computer technology and usage should be a required course (Tables 3, 5, 8, 9, & 10) for all students. Keyboarding skills (Tables 3 & 5) should be taught on a computer before students enter high school.
When one studies Table 5, which is entitled "Parental View of Computer Technology and Use", one can conclude that parents are very supportive of their students learning computer skills. It could be assumed that parents believe their students will do better in school if they have use of a computer. One can assume that parents perceive computers as common everyday tools in the workplace.

One conclusion that can be made is that if parents and business are as supportive as they were in these surveys, school districts should not be afraid to develop plans to implement up-to-date technology in the schools. One can envision support from business, industry, and parent groups if well developed strategies have been presented to explain how the implementation will prepare students for the workplace. The literature reviewed indicated that in some states bond issues can be passed (Stinson, 1993) to support up-to-date technology. It is legal to present a bond issue in Illinois for technology (Delbert L. Maroon, personal communication, June 10, 1994). This type of funding requires well developed planning that explains the benefits for students, businesses, and the community at large. Bob Hughes, the Corporate Director for Educational Relations for the Boeing Corporation, indicates that rural districts generally have more problem passing a referendum for technology than urban or suburban areas (Stinson, 1993).
Chapter V

Summary, Findings, and Recommendations

Summary

This study focused on the use of computer hardware, software, and the attitudes of teachers, parents, business and industry toward technology in Bond, Fayette, and Effingham counties of Illinois. That focus was to help determine educational needs and expectations related to computer use. Finally, a consensus of data was used to make recommendations of how schools served by Okaw Area Vocational Center may further develop their computer programs to meet community needs.

This was accomplished by conducting random surveys of three groups: Teachers (vocational teachers of Okaw Area Vocational Center and teachers indirectly connected through a district that sends students to Okaw Area Vocational Center), Parents (those who were present at College and Career Night, 1994), and Business and Industry within the Okaw Area Vocational Center’s region.

Teachers were surveyed to determine the importance they placed on the knowledge and understanding of hardware and software for their students. The teacher survey also reflected their attitudes toward technology and curriculum development.

The parents were surveyed to determine how many homes have a computer as well as the brand of computer. This
survey was to determine what production software programs were available in homes with a computer. Student use of the computer as well as parental attitudes toward technology were to be determined.

Business and Industry were surveyed to find out what hardware and computer brands were preferred. The survey was used to find out which software was being used by business and industry. Business's attitude toward entry level employees and the employees understanding of hardware, software, and telecommunications was also explored.

In addition to conducting the research, a review was made of the literature which focused on technology in the public schools. A great deal of material was located which dealt with technology in the public schools. This information did not just deal with hardware and software as one might think, but dealt with sources for funding technology, legislation concerning technology, Internet and the National Information Infrastructure (NII), business and industry's needs from employees, student needs for the workplace, and school reform with technology at the core.

Findings

Eighty-eight percent of businesses and industries in the Bond, Fayette, and Effingham counties have IBM or compatible computers. Business and industry expect entry level people to be familiar with and have skills to use a IBM computer. Business representatives think entry level
employees should have knowledge of software that includes an operational understanding of MS DOS, Windows, Lotus, WordPerfect, and Microsoft Works. Seventy-nine percent of businesses and industries in the Okaw Center area use either WordPerfect, MS Works, or Professional Write for word processing. Students should know how to operate and use modems and fax machines. Parents, teachers, and business representatives believe computer technology and usage should be a required course for all high school students. Keyboarding skills should be taught to students before they enter high school. Parents perceive that students do better quality work in school if they use a computer. The computer is a common work tool today. Parent and business attitudes are supportive of all high school students being technology literate. Schools should involve community support and input into the development of their schools technology programs. Schools need to sell the community on their educational programs. When the community believes in the school program, it will support schools with the dollars needed. Technology is changing at such a rapid pace the hardware becomes outdated quickly. Keeping technology current is costly. Recommendations

In studying the findings of this field study, the author of this paper became aware, after compiling the information, it would have been better to have questions
twenty one through twenty four of the parent survey, as one multiple choice question. Parents should also have been asked if more than one computer was in the home.

School districts should only use IBM or compatible computers in junior high or middle school and high school. Parents believe use of computers improve the quality of student work. If students have keyboard training in middle school or junior high, the quality of the student’s work in high school should improve. With 91% of businesses saying entry level employees should be familiar with IBM or IBM compatible computers and 35% of the homes in the area having IBM or compatible computers, it is logical that the school should be using IBM or IBM compatible computers. This author would suggest that the Apple computers in the high schools and middle or junior high schools should be sent to the elementary schools.

The author of this study would recommend that area districts maintain computer laboratories where they can teach keyboarding skills, word processing with one or two of the programs used by business and industry, spreadsheet training with Lotus 1-2-3, and data basing with dbase or Works. These districts should add other new technology only as new computers are purchased to replace very old machines.

Due to the high cost of keeping up with current technology, it is logical that the latest technology should be maintained at Okaw Area Vocational Center. Students
interested in specialized training could become familiar with the current technology through the Okaw Vocational Center. This would take the pressures off of the local districts to supply the latest technological equipment.

School districts need to develop educational plans for the next 5, 10, 15 to 20 years. These plans need to consider developing workplace skills in all students. Educators must realize that they are no longer educating students to work in a mass production society. A major change in thought must take place. Students must be able to work together in teams and make decisions.

School districts need to consider developing an educational program that can meet the individual needs of the student. The school reform movement is based upon a belief that each student needs to learn at an individual rate rather than in a mass production lock step method as currently used in many schools. If each student had access to a computer that is connected to Internet, students could receive instruction from a specialist in the field. That same student could research information that is on data bases around the world. Students would actually do research to discover all possible solutions to a question. The teacher's role would change from one giving instruction to that of a facilitator. To achieve this level of instruction the schools must be wired and connected to fiber optic line. With the combination of two way television and the computer,
distant learning is coming to the schools and homes of America. Distant learning is already occurring in the form of TI-IN satellite television. Businesses and industries are pushing for educational reform that will better prepare students for the workplace. As a result, educators need to take a careful look at distant learning for the future.
References


Appendix A

Teacher Survey
TEACHER SURVEY

Directions: For each numbered item find the numbered row and fill in the desired letter that equals the desired response. A = Strongly Agree; B = Agree; C = Undecided; D = Disagree; E = Strongly Disagree.

1. Industry uses basically IBM computers.
2. Computer technology and usage should be a required subject for all high school students.
3. Computer literacy should be integrated with the high school curriculum.
4. WordPerfect is the number one word processing program.
5. High school graduates should possess strong skills in communications and interpersonal relationships.
6. Intradenartmental integration is an important aspect of curriculum development.
7. Math and reading skills are important aspects for employment in today’s work force.
8. Educational theory, job readiness skills, and hands on applications should be taught in today’s curriculum.
9. A work place learning experience should be an important aspect for an integrated high school curriculum.
10. The high school student should experience hands on training in the work environment.
11. Computer literacy and basic keyboarding skills should be developed before high school.
12. Students need to be familiar with more than one brand of computer.
13. Students should be knowledgeable of MS DOS.
14. High School graduates need an understanding of how to use a computer modem.
15. Computer fax instruction is necessary for high school students.
16. Basic keyboarding skills should be taught on the computer rather than a typewriter.
17. High school students should possess keyboard skills.
18. High school students should have a good understanding of MS DOS.
19. High school students should have operational knowledge of WordPerfect.
20. High school students should have operational knowledge of Lotus or similar spreadsheet.
DIRECTIONS: For each numbered item find the numbered row and fill in the desired letter that equals the desired response. A = Strongly Agree; B = Agree; C = Undecided; D = Disagree; E = Strongly Disagree.

21. High school students should have operational knowledge of dBase.

22. High school students should have a working knowledge of an integrated program such as MS Works.

23. High school students should have programming knowledge of Basic.

24. High school students should have programming knowledge of Pascal.

25. High school students should have programming knowledge of Fortran.

26. High school students should have programming knowledge of Cobol.

27. High school graduates should have an understanding of how to use a CD ROM.

28. High school graduates should have an understanding of a backup drive.
Appendix B

Computer Survey for Parents in Bond, Fayette, and Effingham Counties
Computer Survey for Parents in Bond, Fayette, and Effingham Counties

DIRECTIONS: For each numbered items 1 - 10 mark your response in the correctly numbered row. A = Yes; B = No)

1. Do you have a computer in your home?

2. Does your high school student use a computer to do his/her assignments?

3. Do you believe the use of a computer would or does improve your student’s work quality?

4. Do you believe it is important for your student to develop marketable computer skills?

5. Do you believe all students need to learn basic computer skills?

6. Did you encourage your high school student to buy his/her own computer for doing homework?

7. Do you encourage your high school student to spend time at the public library or computer laboratory to do homework?

8. Do you believe that computers are common everyday tools in life today?

9. Do you view computer skills necessary to survive in today’s work world?

10. Does your student or graduate display interest in working more with computers?
DIRECTIONS: For questions 11 - 12 mark the letter space that best answers the question.

11. What number of hours best weekly describes the amount of time your high school student uses a computer?
   (a) Less than 1 hour
   (b) More than 1 hour, but less than 10 hours
   (c) More than 10 hours, but less than 15 hours
   (d) More than 15 hours, but less than 20 hours
   (e) 20 hours or more.

12. What type of computer is available in your home?
   (a) NONE (If this letter is marked, you need not complete the rest of this survey.)
   (b) IBM or IBM compatible computer
   (c) Apple series computer
   (d) Macintosh
   (e) Other (please list) ____________________________
DIRECTIONS: For each numbered items 21 - 39 mark your response in the correctly numbered row. 
A = Yes; B = No

21. Does your computer have more than one size drive?
22. Does your computer have 128k or less?
23. Does your computer have 128k or more, but less than one meg.
24. Does your computer have one meg or more of memory?
25. Does your computer have a hard drive?
26. Does your computer have a CD Rom?
27. Does your computer have a modem?
28. Does your computer have fax capabilities?
29. Do you have a word processing program?
30. If 29 was YES; do you have WordPerfect?
31. If 29 was YES; do you have Apple or MS Works?
32. Do you have a spreadsheet program?
33. If 32 was YES; do you have Lotus?
34. If 32 was YES; do you have Apple or MS Works?
35. If 32 was Yes; is your spreadsheet another?
   (if so please list)________________________
36. Do you have database program for your computer?
37. If 36 was yes; is your database program a works program?
38. If 36 was yes; is your database program dbase?
39. If 36 was yes; is your database another program? 
   (if so please list) _________________________
Appendix C

Business and Industrial Computer Survey
Business and Industrial Computer Survey

DIRECTIONS: Items 1 -21; For each numbered item fill in the A oval for Yes; B oval for No.
A = Yes; B = No

1. High school graduates need to have an understanding of DOS.

2. Does your company use WordPerfect?

3. Does your company use Windows on its computer?

4. Does your company use Microsoft Works?

5. Does your company use Professional Write?

6. Does your company use Apple Works?

7. Does your company use Auto Cad software?

8. Does your company use Lotus 1-2-3 software?

9. Does your company have computer fax capabilities?

10. Does your company use computer fax capabilities?

11. Does your company have a separate fax machine?

12. Does your company have a modem for its computers?

13. Does your company have computer training for entry level people.

14. Does your company use a CD Rom?

15. Does your company require printer use?
   (If Yes; please list brand)

16. Do entry level people need to have an understanding of telecommunications?

Entry level employees of your company should be familiar with -

17. IBM computers
18. IBM compatible
19. Macintosh
20. Other
   (Please list)________________________________________

(OVER)
Business and Industrial Computer Survey

21. Does your company use a computer network?  
(If so what brand of network is used?)

Directions: Item 22 - Mark item A - E that best answers the question.

22. This company prefers which brand of computer?

(A) IBM     (B) IBM compatible    (C) Macintosh
           (D) Apple II     (E) Other

(If E was marked for Other please list the brand on line)

23. Please list any additional skills required by your company.