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## The effects of computers and the internet on small town America

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## The effects of computers and the internet on small town America

### Abstract

Computers and the Internet have changed the way small town America operates. The infusion of technology has allowed rural areas to be competitive with residents in urban areas in education, business, and personal fulfillment. Computerized systems have made the workplace more efficient and effective. The Internet connects rural areas to the rest of the country, even the world. Just because a small town atmosphere appears to be in a different era with its quiet streets and friendly people, this does not necessarily indicate that the small town has not kept up with the technology era. A small town can have the best of both worlds.

THE EFFECTS OF COMPUTERS AND THE INTERNET  
ON SMALL TOWN AMERICA

A Graduate Research Paper  
Submitted to the  
Division of Educational Technology  
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in Partial Fulfillment  
of the Requirements for the Degree  
Master of Arts

UNIVERSITY OF NORTHERN IOWA

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## Abstract

Computers and the Internet have changed the way small town America operates. The infusion of technology has allowed rural areas to be competitive with residents in urban areas in education, business, and personal fulfillment. Computerized systems have made the workplace more efficient and effective. The Internet connects rural areas to the rest of the country, even the world. Just because a small town atmosphere appears to be in a different era with its quiet streets and friendly people, this does not necessarily indicate that the small town has not kept up with the technology era. A small town can have the best of both worlds.

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## Introduction

Guttenberg, Iowa is the essence of small town America. It is nestled among the rolling hills of northeast Iowa, protected by farm country on the northern, southern, and western boundaries. The eastern edge of town holds hands with the mighty Mississippi River. The town has a German Heritage which can be experienced as one strolls through the downtown business district. As of the last completed census in 1990, the town's population was 2,257 residents (J. Zittergruen, personal communication, 6, 12, 2000).

Guttenberg currently has one K-12 public school and one K-8 parochial school. Although Guttenberg is a small town, it is fortunate enough to have a hospital, a family medical clinic, two dentist offices, a pharmacy, a fairly good sized grocery store, a post office, five churches, four gas stations/ convenience stores, a hardware store, a Ford/Mercury Dealer, a local newspaper business, and a nice selection of eating establishments and shops. Other additions include two privately owned motels, a senior citizen apartment complex, a recently-constructed Adult Living Center, and the Guttenberg Care Center.

Rural areas with their quiet atmospheres and smooth flowing traffic appear to lag behind cities and urban areas in almost every respect: housing and shopping developments; businesses; food services; human services; recreation; educational opportunities; and most recently technology. But just because a small town may not possess thousands of people, tall buildings, big businesses, a K-Mart or McDonald's, it does not mean the town is behind the times. Technology does not usually require a minimum number of people in order to serve its purpose. The small towns in America have the opportunity to infuse technology into the homes, businesses, and schools

and offer the residents the chance to prepare for the future. And many small towns are doing just that. Guttenberg is one of those small towns that is seeing changes due to computers and the Internet.

This paper will discuss how computers and the Internet have influenced and affected some of the businesses and services in Guttenberg, Iowa.

### Methods

A random sampling of Guttenberg's businesses and services will be part of this paper, rather than attempt to include all of them. The student survey questions were asked, at random, of students face-to-face and their names will not be used in this paper as parent permission has not been sought.

The information concerning businesses and services in the town of Guttenberg was collected in one or both of the following methods: printed surveys and face-to-face meetings. Each person contacted as a reference was given an explanation as to why the information was desired and what kind of information was valuable. Most of the sources had time for a face-to-face meeting, which was the most preferred and beneficial method.

### Guttenberg Resources

#### Schools

The two schools in Guttenberg work hard to be part of the technology age and offer students opportunities to prepare for the future. Five years ago, the Guttenberg Community School put a Power Mac on every teachers' desk. Each computer was connected to the Internet and teachers were provided with basic training in word processing and the email system. Technology Coordinator, Steve Dikkers, offers professional development courses during the school year and usually during the summer to keep

teachers updated on the latest technology available through the school. During the summers of 1999 and 2000, Dikkers offered courses in creating and maintaining teacher web sites using Adobe PageMill that linked to the school's home page. Teachers have taken the courses for recertification credits, college credits, or just for the experience of learning a new technology.

The school has ordered new technology equipment each year. The high school computer lab was updated two years ago with Macintosh G3's and last September the Business Lab replaced the older computers with iMacs. All lab computers have Internet access and software programs to meet the business and computer classes' curricula. The older computers from the two high school labs have been distributed throughout the junior high and elementary buildings. New equipment has been ordered for the 2000-2001 school year. According to Dikkers, the elementary will be receiving two iMacs, two scanners, and new software packages including HyperStudio, Inspiration, Adobe PhotoShop, and more (personal communication, S. Dikkers, 6, 2, 2000). Two more iMacs have been ordered, but their classrooms are yet to be determined. Two iBooks have been ordered for teachers to sign out for workshops and conferences. A digital camera was purchased for the desktop publishing/school annual class. Each teacher's desktop computer will have extra memory installed over the summer. The network received a bit of a facelift, and the technology assistant will organize the new web server.

In the summer of 1999, the Technology Committee wrote a new technology plan for K-12. Implementation of this new plan is in the beginning stages.

School Business Manager Dave Schlueter says, "I could not imagine doing accounting without a computer. Computers increase accuracy and

speed and provide the necessary data to make decisions in a timely manner” (personal communication, 6, 5, 2000). He spends approximately twenty hours per week on a computer as part of his job. If he did not have a computer system for record keeping, he would need two or three people to record all the information by hand. Schlueter uses the Internet to send reports to the Department of Education and other state agencies, and stays abreast of the latest regulations and codes. The high school principal and the K-8 principal create monthly calendars on Calendar Maker software and then forward a copy to the school web master, Austin Greve, to be placed on the school’s web site. The head cook sends the breakfast and lunch menu for each month to the webmaster as well. Teachers send school news articles to the publishing class to be included in the monthly newsletter that is sent to families and community members (A. Greve, personal communication, 5, 25, 2000). Teachers take advantage of the email system to contact fellow teachers or administrators. The Internet comes in handy for finding and ordering materials from the local Area Education Agency, to find online resources such as ideas or lesson plans, or specific topic information.

A survey of the teaching staff concluded that of the 43 teachers on staff, 28 have a computer at home, 19 are connected to the Internet, leaving 14 that have neither a computer or Internet access. A question on the survey asked teachers why they did not have a computer at home or why the computer they had was not connected to the Internet, to which most replied that since they had access to both at school, they did not see a need to purchase these items. A few teachers replied that since computers are continually improving, purchased computers are outdated too quickly. A few teachers at Guttenberg Community School have taken advantage of web-based and online courses to further their education or for professional

development. The opportunity to take courses in this manner saves teachers time otherwise spent on the road, money for fuel and wear and tear on the vehicle, and takes away the stress of unpredictable weather conditions.

St. Mary School principal, Sister Suzanne Gallagher, has been ambitious in writing grants and has been successful in her ventures. With grant money received, St. Mary School has been able to set up a computer lab that all grades use. A one-week Computer Camp is often held in early August for interested teachers and students. Sister Suzanne firmly believes that computers and technology are an important part of education and keeps herself updated as much as possible. She has just ordered herself an iBook since she's getting a little tired of carrying an iMac to all the workshops, conferences, and conventions she attends (S. Gallagher, personal communication, 5, 25, 2000).

Random surveys of students from both schools determined that 90% of students feel totally comfortable with computers and look forward to using them for school and personal needs. Of those surveyed, 60% have regular access through home, school, or the public library. Summaries of the student surveys follow:

- Lower elementary students refer to "playing" on the computer, but concede they can learn from it.
- Upper elementary students say the computer and the Internet make it much easier and more interesting to find information for assignments than looking through books and outdated encyclopedias.
- Junior high and high school students believe that technology will be an important part of their futures and most like learning the technologies available.

Although the school does not allow students access to email, a surprising number of students who do not have email access at home, have hotmail accounts that they check regularly at the public library or at the homes of friends with access.

### Public Library

The Guttenberg Public Library is one of the community's leaders with computers and the Internet. The library is totally automated and librarians Mary Ackerman and Caroline Rosacker talk excitedly about the improvements in technology that have occurred in the last few years (personal communication, 5, 12, 2000). Scanning the books is much quicker than the old method of signing the card, stamp dating it, and then filing it in under the correct date. Now a quick scan of the book and the patron's library card is all it takes. The only disadvantage of the whole automated system is that the librarian must scan the books-with the old method, patrons could check out themselves while the librarian attended to other business(M. Ackerman, personal communication, 5, 12, 2000). The library provides seven computers for public use. Six of these are connected to the Internet. Ackerman estimates that 20-25 people use the computers on a daily basis. When asked what purposes the community members use the computers for, she replied that many use the Internet to check personal email accounts, some do information searches or word processing, and others just surf the Internet looking for topics of interest.

Rosacker (personal communication, 5, 12, 2000) talks about the advantages of the SILO (State of Iowa Library Online) program. When someone wants a specific book and the visited library does not have it on hand, the information is put on the SILO and nearby libraries that do have the book are listed. The Internet allows for ease and speed in the inter-library

loans process. She also discussed the advantages of having a book's history at the click of the mouse-what it is about, who checked it out and when.

Ackerman commented that an Internet bulletin board for librarians can be a helpful resource on how to handle issues or problems or for the sharing of ideas. Guttenberg Public Library recently subscribed to the Electric Library as another electronic resource for the community.

### City Office

Julie Zittergruen is the Deputy Clerk/Assistant City Manager for the city of Guttenberg (personal communication, 6, 12, 2000). When she started working in the city office thirteen years ago, the transition to computers was in progress. Today, all the systems and operations are computerized.

Zittergruen could not imagine how the office kept track of all the documentation, billings, payrolls, and records before computers; she stated how the paper/pencil method would be so much more time consuming. Just the updating of equipment and programs since she began her position have made drastic improvements in daily processes. After noticing the comfortable office with modern equipment, it was surprising to discover that the city office did not have Internet access. Well, not for the office employees, anyway.

The city manager has access to the Internet with his laptop computer. This is not an ideal set up for the city manager, though, as he must use his only phone line to be connected. This inconvenience can impede the city manager's daily operations. Zittergruen has hopes of the office getting connected to the Internet. She stated that Internet access could improve the conditions of her job, such as having instant access to the latest information or downloading forms instead of waiting until they arrive in the mail. The capability of emailing companies, customers, or other cities could save time, paper, and mailing costs. This small town city office is on its way to the

technology age, according to Zittergruen, but still has some improvements to make.

### Post Office

The Guttenberg Post Office is moving toward using technology in their daily operations. Post Master Brenda Gibbs says that computerizing the mail systems has increased job performance (personal communication, 6, 12, 2000). The front desk now sports two customer service computerized machines that instantly determine the cost to mail items in contrast to weighing the items in a scale, checking the chart for cost, and then printing the information by hand. Internet access allows employees to easily track customer packages, either to find out where they are or to confirm when and how they have arrived at the intended destination. Gibbs also uses the Internet to update mailers and to get the latest rules and regulations of the United States Postal System.

### Guttenberg Press

The Guttenberg Press, named after the original Gutenberg Printing Press, is responsible for a weekly local newspaper and also prints items such as resumes, announcements, and advertisements. According to Sheila Tompkins, Press employee, computers have been used for quite some time for the text printing aspect of the paper and the office is working toward getting all the record keeping computerized (personal communication, 6, 13, 2000). Software programs such as PhotoShop are used to enhance photographs that appear in the paper. The business has been connected to the Internet for a couple of years. The Internet is used to research information that is used for news items. For instance, Tompkins had recently researched riverboats to go along with an article about the recent visit of the Mississippi Queen riverboat through Lock and Dam #10. News items and/or comments

are sometimes received via the email system.

### Local Medical Services

Linda Aulwes is the office manager at Family Medicine Associates. Almost every aspect of the office has moved to a computerized system. Ten years ago, everything was written by hand. Aulwes commented that it usually took two people, for at least eight hours, every Friday just to write up the insurance claims for the week (personal communication, 6, 13, 2000). Thanks to computer systems, claims are submitted electronically shortly after the patients leave the office. The turn-around time between sending claims and receiving the insurance payments has dropped from over 30 days to approximately ten days. Aulwes explained that the office cannot send 100% of the various insurance claims electronically since not all businesses use the same systems. For the insurance companies the Guttenberg office cannot send to directly, the claims are sent to a "pooling agency." The pooling agency sorts, prints, and mails the various claims to the designated companies. This service costs the Guttenberg office approximately four cents more than the price of a stamp for each individual claim, but Aulwes says that her office could not do all the steps themselves for less than that four cents. A convenience of scheduling appointments and keeping the books on the computer system is that the information can be accessed from anywhere in the office. Patient files are being computerized and this puts the information all in one place for the doctors and nurses. Aulwes mentioned that paper files can be tied up in one department while the patient is in another department and attending medical staff may need immediate information. With computerized files, the information is available whenever needed. She does not know if the office will ever get to the totally paperless stage, but it has made strides in saving paper and being much more efficient. Aulwes

commented that if the office was not on a computerized system, she would have to double the number of employees on staff.

As for the Internet, Aulwes has a computer with Internet access and uses it to find health information for some patients (personal communication, 6, 13, 2000). Helpful web site addresses are given to patients that have Internet access, and information can be printed out for those not having access. In some cases, information is printed out in sheets or brochures and made available to patients. Physician Assistant Deb Mescher shared that Dr. Andrew Smith searches the World Wide Web regularly, and prints out information for the other doctors, nurses, staff, and patients. He visits the Center for Disease Control (CDC) web site regularly for the latest updates on diseases and collects information on the latest medical issues (D. Mescher, personal communication, 7,12, 2000).

#### Bank

Julie Rosacker is Bank Supervisor/teller/bookkeeper at Security State Bank in Guttenberg. Almost every daily process is done on a computer system-setting up new accounts, maintaining accounts, account information, overdrafts, and loan processing (personal communication, 6, 7, 2000). The bank uses the Internet for correspondence, statement updating, finding addresses, and checking interest rates. When asked how taking these tools away would change the daily routines, Rosacker said the bank would need more employees to keep up on the daily paper work, more employee time would be spent on the phone answering questions or locating information (which would also lead to the need for more employees to work at the counter), and the postage costs would increase as more items would have to be mailed rather than transmitted electronically.

### Area Businesses

Town House Accents is a quaint little shop in the downtown area that sells specialty items such as the Ty Beanie Baby collection, Bridgewater candles, unique gift items, and eventually added a "Gent's Furnishings" room which carries Woolrich clothing and supplies. Owners Pat and Dick Burroughs recently had a web site created and linked to the city of Guttenberg's home site (personal communication, 6,13, 2000). The business does not have computers or Internet access, but Pat admits that she has both at home where she does much of her record keeping on her own time. When asked if she uses the Internet for business, she replied that she regularly visits web sites to obtain information about the newest Beanie Babies that are going to be put on the market; the Ty Beanie Baby site is much slower at getting the information up than other sites, and Pat likes to be on top of the situation since she can expect daily questions about the collection and it is one of her hottest selling items. As for other items in the store, Pat enjoys going to the showings/presentations and actually seeing items first hand. She also does much of her ordering through catalogs at the present time, but predicts that it won't be too long before she will be ordering larger quantities through the Internet.

Kann's Imports is a unique shop with imports from around the world. It attracts many tourists who become fascinated by a visit to the store. Diane Meskimen, store employee, displayed a brochure that had been recently printed with the web address and commented how email questions, comments, and sales have steadily increased in the past month (personal communication, 6,13, 2000). Since the store receives many phone calls from out-of-town customers, management decided a web site and an email address could be beneficial to business (D. Meskimen, personal

communication, 6, 13, 2000). Customers can order online, through a fax, or the telephone and Kann's will ship the purchases immediately.

Esser's is a family owned business that sells men's and women's clothing and shoes for the entire family. Like other businesses, Esser's does not have computers or the Internet located at the business site. But Matt Esser goes online regularly at home for business purposes. He places many orders through the Internet and likes the instant feedback that informs him of the latest inventory standings-whether or not the items are currently available or when they will be. Esser has contacted companies through email to answer questions he may have (personal communication, 6,13, 2000).

Tom and Jane Augustyn are the proprietors of Clayton Ridge Farm Meat and Gift Shop. The farm produces the beef, pork and garden products that are served and sold at the shop. The shop does not have computers or the Internet, but Tom and Jane both use the Internet frequently at home for business purposes. Jane collects gift ideas and recipes for gourmet products. Tom watches beef and pork prices and looks for innovative marketing ideas. The couple had hopes of having a web site earlier this year, but with issues of shipping meat products out of state, the web site is on hold until January (personal communication, 6,15, 2000).

The Guttenberg Pharmacy does not have Internet access, but does use a system that works like email; the pharmacy department is connected to insurance companies and gets immediate feedback when preparing medications for customers. A computerized system is also used for preparing and printing the labels that go on the medications. Pharmacist Dan Shannon commented that the system makes the insurance aspect faster, easier, and less costly and the computerized labels save valuable time that would be spent lining up labels and typing on a typewriter (personal

communication, 6,12, 2000).

McGrane Bookkeeping and Tax Service is a husband and wife business. Jean McGrane serves as receptionist/secretary while John does the number crunching. Jean uses the computer regularly for most of her daily chores. John, on the other hand, uses his computer only at tax time. Neither Jean or John see any need for Internet access at the office. Jean believes the computer has made her job somewhat easier-just a different way of getting things done. The McGranes do have Internet access at home which Jean uses to email their two daughters that live out of town. Jason however, their seventeen-year-old son, uses the Internet daily to purchase and sell golf items, check the latest golf scores, get information about golfing and hunting, and to collect research information for school projects (personal communication, 6, 23, 2000).

Tujetsch Insurance and Realty is another family owned business and uses computers and the Internet for business. Secretary Brenda Burr shared that some of the business is computerized and some is still written by hand (personal communication, 6, 23, 2000). She stated that sometimes it is easier to look at a hard copy that you can see all at once than having to search different screens to find what you are looking for. She also mentioned that sometimes pulling the file out of a drawer can be faster than waiting for a screen to load-especially when a customer is waiting for an answer. She concedes that computers have improved the work done on tax records. The form is on the screen of the monitor and the information just gets typed in; before an overlay had to be lined up with the print and then copies made without moving either sheet. This business uses the Internet to check "Blue Book" values of automobiles to determine insurance costs. Before the Internet, the Blue Books had to be purchased and continually updated-once

they were out of date, they were useless.

Rightway Realty is a father-son business that has taken advantage of technology to promote the business. Son Gary Willman says having a web site for their realty business has proven to be an asset (personal communication, 7, 6, 2000). It is not unusual for Gary or his father to receive a phone call from a person from another town or state that is interested in one of the sale listings that was seen on their web site (G. Willman, personal communication, 7, 6, 2000). The Rightway Realty web site is very informative. On the home page, one can find the phone number, the fax number, and links to Meet the Owner, Tour Guttenberg, Order Listing Guide, and Email Us. What a great way to learn about the realtors and the town without leaving your computer. That is not all, the best part for someone interested in moving to the area is that with another click, the descriptions and photographs of the properties for sale are right at your fingertips.

#### Community Churches

Many of the community's churches are taking advantage of computers to improve record keeping and for printing church bulletins. Churches that have Internet access are able to send information directly to headquarters or to other churches that would otherwise have to be printed and mailed through the postal service ( L. Obershaw, personal communication, 6, 23, 2000). Email systems allow church volunteers to stay in contact with each other or the pastors during the week. Volunteers that do the record keeping love the idea of computerizing church systems and Internet connections to other locations (L. Obershaw and N. Schroeder, personal communication, 6, 23, 2000).

#### Civic and Commerce Club

The Guttenberg Civic and Commerce Club has been working hard make Guttenberg a town where people want to live and place that tourists

want to visit. Connie Backes, secretary for the club discusses a web site that has been created to promote the town and to inform tourists of what Guttenberg has to offer (personal communication, 6,15, 2000). The site offers much information about the town. The site offers a map to show where Guttenberg is located, lists motels and lodging options, restaurants, shops, services, recreation, area attractions, health care information, education information, manufacturing and industries, special events, and a calendar of events. As local merchants have web sites designed, most opt to have their sites linked to the Guttenberg site. The Guttenberg Community School has a link to the town site and vice versa. These connections make it easy for families that are thinking of moving to the area to have many questions answered; families can discover the town, and get information on the schools, churches, services, and employment opportunities that are available.

#### Discussion

The Internet not only improves business and educational opportunities; people living in rural communities can experience enhanced personal opportunities. Shopping online has become extremely popular, especially since well-known stores offer products online. People no longer have to drive to the nearest shopping mall to buy that jacket from JCPenney- just log on to the web site, place your order, and within a few days the item will arrive in the mail or by UPS. The JCPenney store nearest to Guttenberg is in Dubuque, Iowa-a distance of approximately 40 miles. When purchasing online, the customer often pays for delivery of the items ordered, but the amount is likely to be less than the cost of driving to the store-especially when you tack on the cost to have lunch, dinner, or fancy treats when we visit the mall or the bigger city. The Internet allows us to shop across the miles, not just forty miles away, but across the continent or ocean, at unique stores we

may never have the opportunity to buy from in person. A fellow teacher did almost all of her 1999 Christmas shopping online. When asked if she felt any regret for breaking her usual Christmas tradition of shopping in the crowded, noisy malls and lugging around packages, she just laughed. She commented that sitting in front of her computer, snuggled in her robe, sipping on a cup of flavored coffee was going to be her new Christmas tradition when it comes to the shopping. (M. Streich, personal communication, 5, 24, 2000)

The Internet has been helpful in the purchasing of airline tickets. With all the competition on the Internet selling airfares, online prices are generally cheaper than those of the specific airports (N. Clefisch, personal communication, 4, 15, 2000). The electronic tickets that can be purchased online make it more accessible for customers, especially rural customers to book flights (D. Pont, personal communication, 6, 5, 2000). Printed confirmation is received, the customer shows up at the airport, checks in, and flies to the choice destination.

Teachers from all over the country in rural and city areas are taking advantage of professional development online. According to the Curriculum Administration, February 2000 magazine, "Online professional development allows an organization to conduct courses for any number of educators in any place in the United States" (p. 61). Online courses not only allow teachers to take classes locally, some teachers feel more comfortable learning on the Internet.

Rural communities from all over the United States are taking advantage of computers and the Internet to expand their knowledge and experiences beyond their city limits. The NEA Today, May 2000 issue describes how a teacher from West Virginia, Brenda Bleigh, wrote numerous grants to bring world-class technology to her rural school district. Bleigh is a

coal-miner's daughter, the first of eight children to go to college, who grew up in the rural and poor Burnsville area where she now teaches. She knew that if the school could provide the technology, the 170 students in this district could at least compete with students from other districts. Bleigh started out writing small grants and worked her way up to a total of \$ 500,000 in grant money. Thanks to her efforts, every classroom has a modern workstation with Internet access. One of the grants funded a 15-station lab which is used for thematic units. With the Christa McAuliffe Fellowship award, Bleigh now has a DISCOVER Science Center in her Title I resource room which includes a stereo microscope, SMART board, and projector. Recent student test scores show significant increases in math, reading, and language arts skills which many believe are in response to the new technology. Bleigh says that teaching in rural areas can be isolating, but with Internet access, she finds ideas, lesson plans, and pictures to use in the curriculum. One of the grants she wrote funds summer technology workshops for fellow teachers. Grant writing can be time consuming, but it is worth the effort to help rural students cross the digital divide.

The Albers School District in Illinois is another example of a poor and rural district that realized the importance of technology-based education (Matte, 2000). The district's curriculum was limited by a lack of resources. The community and school pulled together to secure a \$33,000 Technology Integration Grant. Internet-ready workstations were purchased and the district entered into a one-year partnership with Futurekids, a private firm that provided software, a technology curriculum, and 45 hours of technology professional development. Students worked on mastering ten core technology skills: desktop publishing, databases, graphics, word processing, spreadsheets, multimedia, telecommunications, operating environments,

programming, and applied technology. To continue to fund the technology program, school and community volunteers worked a concession stand at the Trans World Dome for the 1997-98 and 1998-99 St. Louis Rams football seasons. Because community support was strong and the school wanted to keep the community involved, adult computer classes were scheduled with a local community college. Community members received rebates on the classes. The second year of the program added more workstations in the classrooms, supplied teachers with laptop computers, fifteen more hours of professional development, added a high-speed printer, and a printer/copier. A computer-based Accelerated Reader program was added to the curriculum to track student reading and comprehension. As a thank you to the senior citizens for their support, the computer lab was opened to the senior population. This is an example of a whole community working together to reach a common goal. The adults of the community realize the importance of their most valuable resource-the children that will be tomorrow's leaders (Matte, 2000).

Laguna Middle School is a Native American school in Laguna, New Mexico. Many Native American students do not have access to technology like students in urban schools (Shaw, 1999). On May 16, 1998, U.S. Secretary of the Interior Bruce Babbitt announced a program called Access Native America. This program would have all 287 schools affiliated with the Bureau of Indian Affairs connected to the Internet by the year 2000. The Laguna district has 20 network stations with multi-media capabilities and connections thanks to partnerships with the BIA and phone companies including US West. Students contact other students from around the country which broadens their horizons and brings the outside world to them. Students correspond with children from other tribes, share stories from their local

communities, and participate in collaborative conferences. While Laguna students are studying *Romeo and Juliet*, Emily Bartels, an English professor and Shakespeare scholar from Rutgers University, serves as an online consultant. Since teachers can be reluctant to embrace technology, the district used Breadloaf Rural Teacher Network as a source for teachers to receive intensive training in incorporating technology into the curriculum. The school provides eighteen laptop computers for students and encourages them to take the laptops home to share with their families. The district has just received a \$30,000 grant from US West to provide free technology to the community. This can help keep families and communities stay intact. Technology allows jobs to be moved to remote locations, crafts to be sold over the Internet, and distance education to fulfill hopes for the future. "Quality of education has little to do with geographical location and more to do with using technology to connect people, and bring new opportunities to students everywhere" (Shaw, 1999, p. 82).

Hancock County, Mississippi is an area that sits on the Mississippi Gulf Coast. The school enrollment here has nearly doubled in the last six years (Shaw, 2000). This population boom has been the result of new casinos and other business growth in the area. This unexpected growth spurt not only created problems of school space, it seemed to widen the digital divide between students that have access to home computers and those that do not. District curriculum director Francis Weiler says, "We were looking for ways to level the playing field for all our children" (Shaw, 2000, p. 22). The school district floated a twenty million dollar bond issue that residents will pay for in taxes the next twenty years. Some of the money was used to purchase laptop computers for every high school student. NetSchools Corporation of Atlanta, Georgia provided the school with wireless StudyPro

computers, server, software, faculty training, and technical support. In a short amount of time, the school has gone from having just 40 percent of its students having access to a computer at home to one of thirteen schools in the nation to issue laptops to its students (Shaw, 2000.) The district is not looking just to improve test scores, but to prepare students for the workplace. According to Weiler, "There is no place that they can go now where they will not need some computer skills and training" (Shaw, 2000, p. 23). The school district has hopes of increasing parental involvement. Parents can be involved in their child's daily school life through the laptop the student brings home each day and the school sets up a day at the end of each quarter for parents to come in and pick up report cards and visit with the teachers. For the parents that are unable to attend the conferences, email is promoted as a method of staying in contact with teachers about student progress. Students appear to like the laptops as part of their education program. When a student's laptop needs fixing, the student is usually anxious to get it back. The biggest challenge facing the district now is providing continuing teacher training to make sure students have the technology opportunities they need.

#### Summary

No matter where one lives today, technology is changing the way things are done. John Kalny (1999) quoted futurist Marshall McLuhan, "First we shape our tools, and then our tools shape us " (p. 18). He goes on to say, "As the new millennium approaches, it is evident that computer technology is having a transformational effect on nearly every facet of our everyday lives" (Kalny, 1999, p.18). Although this article was aimed at education, the theory applies to technology in general. Kalny (1999) says there are the "Six Cs" of teaching expertise: computer mastery, communication, change management, collaboration, cooperation, and critical

thinking. These Six Cs are beneficial traits for teachers to have to successfully implement technology into the curriculum, but they are also traits that apply to the world of work.

Dyrlri (2000) stated "The Internet is now all about accomplishing tasks and getting things done-keeping records, preparing proposals, meeting with colleagues, doing staff development, acquiring skills, taking courses, completing collaborative projects, and going on virtual field trips" (p. 13). Internet access makes these tasks possible anywhere, anytime.

Barron (2000) stated "There is little doubt that e-commerce will become an increasingly significant segment of our economy." and "...will have a profound impact on all businesses..." (p.47). He goes on to say, " In today's world and in the foreseeable future, access to technology and the capacity to use it are critical to the success of our students now and later as workers, family members, and citizens" (p. 48).

Administrator Raymond Jaksa (2000) states, "Technology has changed the world. It has been a change agent for education, communications, economics, politics, and environmental issues" (p.20). He continues with "Schools must prepare students for careers in their future, not jobs of the past" (p.20).

The Presidential Committee of Advisors on Science and Technology (1998) made six recommendations to emphasize the importance of technology. One of the recommendations was to ensure equitable, universal access. "Access to knowledge-building and communication tools based on computing and networking technologies should be made available to all our nation's students regardless of socioeconomic status, race, ethnicity, gender, or geographical factors..." (p.21).

As these preceding statements tell us, the future of our country will be based in technology. It will likely be a factor in almost every job or career. Our job as educators is to prepare students for their futures and success in the workplace. Throughout this paper, reference has been made to the changing world as computers and networking change the way people get their responsibilities accomplished. Technologies have provided access to information and experiences that may have been out of reach before. Students and people living in rural areas are no longer isolated from the rest of the world. Students living in rural areas can compete with students from anywhere in the country to achieve their goals and be successful in the workplace.

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