

THE IMPACT OF PLATO LEARNING, INC. TECHNOLOGY

**CHOTEAU PUBLIC SCHOOLS
CHOTEAU, MONTANA**

CRF and ASSOCIATES, INC.
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Executive Summary

This report outlines the experiences of Choteau Elementary and Choteau High School as they strive to increase student performance and prepare students for a rapidly changing world by adopting a technology-based approach to teaching and learning.

In selecting the NetSchools Corporation's solution, Choteau provided students, teachers, administrators and parents with regular access to computers and the Internet. *During the course of the study, NetSchools was purchased by PLATO Learning, Inc. Therefore, the platform is referred to in this report as PLATO.*

As the individual school reports indicate, use of the PLATO solution:

- Increased professional competencies of teachers and administrators in helping students reach challenging standards.
- Increased the academic performance of students.
- Increased student motivation.
- Enhanced teacher lesson planning using web-based resources.
- Increased communication among students, teachers and administrators.
- Increased use of technology to promote standards based instruction.
- Increased technology and information literacy of students.
- Increased community involvement in learning technologies.
- Facilitated the implementation of the No Child Left Behind Law.

The results are based on surveys of the instructional leaders at each school, i.e., the principals, who used modified versions of instruments developed by the SouthEast and Islands Regional Technology Consortium (SEIR•TEC) for teachers to assess student and teacher use of technology. The authors adapted instruments from NetSchools' Professional Development Services, conducted focus groups and also examined a wide variety of other data provided by the schools, including scores from various standardized and state assessments, to illustrate progress.

The survey showed growth on 73 of 78 measures for both students and teachers, based on the administrators' perceptions. This encompassed not only actual usage of technology applications but also attitudinal shifts.

While further study is necessary to assess the long-term impact of implementation of the PLATO program, these preliminary findings suggest that the program provides a usable framework for integrating technology into K-12 schools that has a positive impact both on student performance and school/community involvement.

Introduction

On January 8, 2002, President Bush signed into law the No Child Left Behind Act of 2001 (NCLB). This new law represents his education reform plan and contains the most sweeping changes to the Elementary and Secondary Education Act (ESEA) since it was enacted in 1965. It changes the federal government's role in kindergarten-through-grade 12 by asking America's schools to describe their success in terms of what each student accomplished. The act contains the President's four basic education reform principles: stronger accountability of results, increased flexibility and local control, expanded options for parents, and an emphasis on teaching methods that have been proven to work.

School systems across the country are using innovative instructional strategies and professional development drawn from scientifically based research to help students attain the knowledge and skills they need to meet higher state standards and the increased demands of today's workforce.

Elementary and secondary school systems, as well as colleges and universities, are spending increasingly more money on instructional technology. Last year, educators spent more than six billion dollars in supporting technology initiatives. These initiatives have increased access to technology. Today, there is slightly more than one computer for every five students. The ratio of students to an Internet-connected computer is almost as good.

Nonetheless, parents, teachers, administrators, school boards and legislators across the country are concerned about the effectiveness of technology use in schools, and homes. They are interested in how best to integrate technology into instructional strategies. If federal, state and local resources for technology are to continue to increase, the effectiveness and impact of technology and its various uses must be prominently demonstrated.

Educators must think broadly about fully integrating technology into the school community, and by extension, the community at large. Linking technology with instructional objectives to increase student performance on state assessments and other standardized tests is an important beginning. However, used creatively and strategically, technology also contributes to other goals and positive educational outcomes such as developing critical thinking skills, facilitating research abilities, learning special applications and using e-mail to communicate with experts and other students around the world. Schools have a tremendous opportunity to teach community members to use technology as a tool to enhance learning in and beyond the classroom walls.

In order to measure more comprehensive uses of technology, traditional practices for measuring the impact of technology in education need to be broadened. Information is needed not only on the skills and knowledge that students gain from using technology but also its impact on teacher methodology, organizational change and outcomes at different stages of implementation. Input from teachers, students, parents and administrators is crucial as we evaluate the impact of technology.

In this study, CRF and Associates examine the impact that the PLATO technology has made in The Choteau, Montana Public Schools. This report is a summary of the findings.

About Choteau Schools

Choteau Public Schools

P.O. Box 657
204 7th Avenue, NW
Choteau, Montana 59422
Kent Kultgen, Superintendent

Choteau Elementary and Choteau High schools occupy a seamless campus on U.S. Highway 89 about 20 miles east of the Rocky Mountains in a region called the Rocky Mountain Front. The largest urban area nearby is Great Falls, located 52 miles to the southeast.

Choteau, the county seat of Teton County (population approximately 6,400), has a small business community, low crime rates and a quality school system. The population of the town is about 1,800 residents, governed by a mayor-city council form of government. The community is located on trucking routes, served by the Burlington Northern Railroad and has a small airport. Choteau is well known for its Old Trail Museum specializing in dinosaur fossils.

Choteau Elementary School has an enrollment of 237 students in the grades K-6 and the high school has 243 students in grades 7 - 12. Staffing for the school system includes a superintendent, two principals, 40 certified teachers and 28 support staff.

The percent of K-12 enrollment by racial or ethnic origin indicates:

American Indian/Native Alaskan	4.97%
Asian American	0.2%
African-American	0.04%
Hispanic or Latino	1.00%
White, Non Hispanic	93.36%

Approximately 36% of the K-6 students and 28% of students in grades 7-12 are eligible for free or reduced lunch.

Kent Kultgen, Superintendent, Neal Wedum, Principal of the high school and Chuck Gameon, Principal of the elementary school, provide outstanding educational and administrative leadership to the students, faculty and staff of the Choteau Public Schools.

Robb Wearley, Technology Coordinator, provides exceptional, and timely technical support to program implementation.

About PLATO Learning, Inc.

For more than 40 years, PLATO® Learning, Inc. has been a leading provider of computer-based and e-learning instruction for kindergarten students through adult learners, offering curricula in reading, writing, math, science, social studies, and life and job skills (PLATO Instructional Solutions). The company also offers an innovative assessment and accountability product line (PLATO Assessment and Accountability Solutions) and standards-based staff development (PLATO Professional Services). With thousands of hours of objective-based, problem-solving courseware, plus assessment, alignment and curriculum management tools, standards-based curricula facilitate learning and school improvement, helping schools meet the requirements of *No Child Left Behind*.

PLATO Learning acquired NetSchools Corporation on May 8, 2002. NetSchools was founded on the principle that all children deserve an education that meets their individual learning needs and fulfills the age-old dream of giving them the one-to-one support they need to achieve their greatest potential. NetSchools was the pioneer in one-to-one e-learning and accountability solutions for both transforming and reforming the nation's schools.

The company offered three wireless laptop solutions for schools. Constellation™ included a wireless laptop computer for every student and teacher for home and school use, and a local wireless network that allows high-speed connectivity. StarClassroomSM provided wireless student laptops on a mobile cart, and StarTeacherSM provided every teacher with a printer and wireless laptop. The Chateau Schools used the Constellation model.

About Orion

In addition to providing a laptop for every student and teacher for school and home use, two other essential components for technology integration must be addressed in order to improve student achievement, namely, accountability to standards and staff development.

PLATO's Orion is an integrated curriculum management and assessment system for schools. It provides schools with instructional management tools to facilitate achievement, alignment, assessment and accountability for students, teachers, parents and administrators. Orion is a web-based application that allows teachers to match a specific objective within their state standards to over 47,000 pre-screened, correlated educational web pages, as well as to a school's existing software programs and textbooks. In addition, these searches can be immediately applied to a lesson plan template, with assignments delivered directly to students and their parents via an integrated calendar tool.

With the Orion assessment tool, teachers can test their students online and, based on the results, the students will receive immediate individual academic assistance plans, including remedial activities drawn from a database of correlated resources. In addition, PLATO provides extensive professional development services to ensure that teachers understand and are comfortable with the capabilities of

the technology.

PLATO makes the claim that these are professional development services designed to ensure systemic change within a school's environment. Each school begins with an implementation plan, followed by the gathering of the necessary school resources to place within the Orion system so teachers will have a clear picture of all the resources available to them to execute standards-based lesson plans and assignments, as well as assessments. A comprehensive professional development plan is then formulated to help teachers utilize Orion for lesson planning, creation of student activities, as well as utilizing the assessment options within Orion.

About the Study

The purpose of this study is to present a summary of the impact and benefits of the PLATO technology in the Choteau Elementary and High Schools. Throughout this report, the following questions will be addressed to assess the extent to which the Choteau Public Schools have achieved their objectives for the use of the PLATO technology.

- What are the characteristics of the schools?
- How has technology impacted student learning and instructional activities?
- Does technology seem to work for all students, including special populations?
- How do teachers use technology?
- How is technology being integrated into instruction, curriculum, management, and indeed, the culture of the school?
- What changes occur at different levels of implementation?
- How does technology impact the relationship between schools and parents? Between schools and the community?

The report focuses on four objectives that were established to evaluate the effect of the PLATO program on students, teachers, parents and administrators:

1. Increase professional competency of the teachers and administrators in using technology effectively in reaching challenging academic standards.
2. Increase technology and information literacy skills of students.
3. Increase community involvement in learning technologies.
4. Improve the learning environment by using digital content and networked applications to further standards-based instruction.

Research Tools

School data that serve as evidence in this report were acquired through school reports, surveys completed by school administrators and staff, focus groups, press releases and other media documents, school websites, and information reported to PLATO.

A modified version of the Teacher Technology Survey, developed by the SouthEast and Islands Regional Technology in Education Consortium (SEIR•TEC) was one of the instruments used in gathering data for the Administrator Technology Survey. An administrator at each site completed the instrument, which retained its validity and reliability.

CRF and Associates adapted the Technology and Integration Gauge, developed by SEIR•TEC, to collect information. Discussion items from SEIR•TEC's Professional Development Idea Workshop were used in one of the focus groups. SEIR•TEC is one of six regional technology in education consortia (R•TEC) funded by the U.S. Department of Education's Office of Educational Research and Improvement. SEIR•TEC is composed of educational organizations committed to providing information, professional development, and technical assistance for educators in the southern states, Puerto Rico and the U.S. Virgin Islands, in order to support and promote improvement in teaching.

CRF and Associates, Inc. used an adapted version of NetSchools' Teacher Technology Survey and Assessment to gather information on student and teacher technology skills. In addition, during the 2002-03 school year, at least five focus groups were conducted at each school. These focus groups elicited information regarding teacher expectations, staff development and teacher, student and parent perceptions about the impact technology integration had on student learning.

The schools also provided a wide variety of other data, including samples of students' work and standardized and state assessments.

Types of data collected are both quantitative and qualitative. Quantitative data consists of students' scores on state assessments and other standardized tests. Where appropriate, textbooks, tests, student products, teacher grades, discipline reports and attendance reports were reviewed. Qualitative data were gathered from focus groups, surveys, staff and parent meetings, interviews and products from school personnel and students.

Focus Group Findings

During the 2002-03 school year, researchers conducted five focus groups with administrators, teachers, students and parents from the Choteau Public Schools. Richard L. Fairley, Ed.D., former Director of the National Title I Program, retired senior executive in the U.S. Department of Education and a principal in CRF Associates, and Mary Jane Mikuriya, M.A., former Title I administrator and evaluator for the San Francisco Public Schools and former project leader at the U.S. Department of Education, acted as facilitators for the focus groups.

Teacher Expectations for the Technology Project

Pre-Implementation Focus Groups for PLATO Evaluation

Choteau School, Choteau, Montana

August 19, 2002

Time: 1 hour

10 Participants: Superintendent, 2 Principals [Elementary and High School], Technology Resource Person, AgriScience, Life Science, Business, 7/8th grade English/Reading, and 6th grade Math/Science teachers.

In responding to questions regarding the current usage of computers in Choteau's two schools, prior to the introduction of the laptop computers and implementation of the site-based, focused and individualized professional development in technology, participants reported that all the Choteau staff had access to computers at school. However, they indicated half the staff used computers often, while some were completely unfamiliar with computers. One staff member used computers regularly for CAD instruction, with only one out of five staff members using computers for administration and grades. Primary concerns identified by the staff members were: (1) Too few computers available to students; (2) no one to help them when the computers did not work; and (3) no one to help them with software problems.

It was clear why staff had not used more technology in the classroom. Staff had not received any training on how to use computers as tools in teaching. When staff members were asked what was needed to make more technology useful for them, the unanimous reply was more technology equipment and more hands-on in-service training.

Staff members were pleased to have a PLATO consultant on site, for one-to-one and small group, on-going staff development training to learn how to use technology to expand and enrich current curriculum offerings. Staff felt a lot of training would be necessary for them to be comfortable using technology in teaching. They felt the full-time, on-site Computer Coordinator would keep computers in working condition and help them broaden their own and students' computer skills. The teachers appreciated being able to take the computers home to practice on and to use in their teaching and in documenting student efforts and achievement. With the take-home laptop computer option for students, staff surmised that there would be increased communication with families through e-mail. They expect to see family ownership and use of computers and technology increase.

There are 321 laptop computers at Choteau Schools. Any student and/or any class K-12 has access to computers within the structure of the learning environment. There are 80 laptops shared at the elementary level and 201 laptops available to 7th-12th grade students as needed throughout the school day and with limited overnight checkout. Also each teacher has a laptop. The laptop computers are used to introduce elementary students to the computer as a learning tool in the classroom. The vast majority of the laptop computers are used for expanding the 7th - 12th grade students' world through electronic virtual field trips, increasing student understanding of subjects with visuals and making available more current information from the internet, than is now in their books. Staff expects that students will become more engaged in and responsible for their own learning and, thus, their test scores should go up. Staff members expressed an eagerness to learn about the Orion curriculum management and assessment program, to communicate with students and teachers in other countries, to use e-mail for better communication with colleagues and families and to help students discover the power of the Internet.

At the time of the focus group, teachers had not yet been trained on the use of laptops and the Orion program and were not yet able to identify any end-of-the-year indicators for program success. However, staff members were enthusiastic about learning how to integrate technology into the curriculum. They knew that technology would excite student to learn in other ways and help them gain a better understanding of the world outside Choteau.

Focus Group for PLATO Evaluation

Impact of Staff Development on the Technology Program

Questions developed from SEIR•TEC, Professional Development Idea Worksheets

Choteau School, Choteau, MT

March 3, 2003

Time 1.25 hours

Participants: 2 Principals, 15 teachers

... on Teachers

Participants reported that some teachers initially resisted the technology implementation.. One teacher even wanted to put the laptop computer in the bottom drawer and forget it. At the high school level, the students' enthusiastic high expectations for access to technology nudged teachers to integrate more technology into their teaching. With timely targeted help from both the PLATO technology trainer and the on-site technology resource person, there was a gradual increase in the use and comfort level of teachers with technology.

The quality of lesson plans changed. When teachers e-mail their lesson plans to principals, they must state what standards they are teaching to. This practice has helped to align what is being taught to the academic standard that will be tested.

By the end of the year, all elementary teachers submitted lesson plans to the principal on line, while in the high school the principal received information both on line and on paper. All teachers also reported using a technology-based grading program. With the availability of the laptop computers, teacher-administrator, teacher-teacher and teacher-parent e-mails significantly increased.

Computer use has expanded beyond the core curriculum to include PE/Health and Music.

... on Students

As teachers learned the software, so likewise the students learn it. Teachers questioned whether, with some computers available at the elementary level, keyboarding skills would still need to be taught at the 7th and 8th grade levels or what point they would/should be taught. Participants said students' growing familiarity with technology had resulted in better 9th and 10th grade writing skills. Staff observed that some students who would have put forth 15 minutes of effort on a book report previously, now could be seen working two hours on a PowerPoint presentation.

Educators participating in the focus group predicted that when students currently in schools graduate and are asked to evaluate their high school program, they will indicate, unlike their predecessors, that they are more technologically literate and better able to function in the world.

... on Administrators

By the end of the 2002-03 school year, teachers were submitting all attendance, breakfast and lunch counts on line from their laptop computers. The administrators appreciated receiving e-mailed articles from teachers for the school newsletter; this saves time, because they do not have to retype the articles. Administrator communication with teachers has improved through the use of e-mail. Because all teachers have laptop computers, administrators can see who has received or not received their messages. Administrators agree they could never go back to their previous paper system, which was more time-consuming and less timely.

... on Community and Others

The school is used as a community center for Adult Education. There is a community demand for technology education. A new computer class at the high school was filled before the information had been printed in the local newspaper. Staff members believe that, if the class is to continue on a regular basis, a tax-based fund to pay for the maintenance of the computers and for the Computer Coordinator will be needed.

Delineation of Responsibilities

Professional Development

The superintendent has overall responsibility for the professional development of staff, with building administrators, in consultation with staff, determining how district goals are implemented in their schools. Besides the contracted 50 days of training provided by PLATO, the principals and superintendent used professional development funds to hire substitutes to free up teachers to attend training, for peer coaching and to go to conferences.

The Superintendent and the leadership team agree that the professional development is highly successful as a result of the Plato consultant, Roxanne Ramos. She is "top notch". She is beloved and appreciated by staff because she is "excruciatingly patient", knows each teacher as a person, is prepared, knowledgeable, and competent.

The Montana State Department of Education requires a five-year Staff Development Plan. The district's current technology plan is built around the PLATO program.

It was noted that 75 percent of Montana teachers leave the state. Therefore, there is some concern that, after all the professional development training, staff turnover might be a problem in the future.

Technology Infrastructure

Staff characterized the state of technology in the school before the PLATO project as “barely above defunct.” Now the schools have computers, peripheral equipment and software supported by the local network and maintained by a full-time, on-site Computer Coordinator. The laptops are observed to be good.

Communication of Results

The Superintendent works directly with the local newspaper, church leaders, local clubs and organizations to disseminate information about school programs, including the new technology initiatives. He foresees giving a presentation at the State’s Principals’ Convention regarding what it means to be a wired school.

Teachers’ Focus Group at the End of the School Year

Focus Group for NetSchools Evaluation

Choteau Schools, Choteau, MT

May 13 & 14, 2003

Time: 1 hour for Elementary and 1 hour for Secondary Teachers

30 Instructional Staff Participants: 16 Elementary Staff and 14 Secondary Staff

The Elementary Staff was composed of 12 K – 6th grade classroom teachers, a Pre-K – 3rd grade special education teacher and aide, a PE/Health teacher and a Title I teacher.

The Secondary Staff was composed of 7th-12th grade teachers of English/Reading/Language Arts, Math, History/Social Studies, Geography, Science, Music, Spanish, Industrial Arts, Agriculture Education, and Family and Consumer Science.

The following summarizes teachers’ responses to seven questions asked in the focus group sessions. Separate sessions were held for elementary and secondary teachers, who represented a cross section of the teaching staffs at the two schools.

1. How has technology improved the *learning environment*?

Elementary teachers described the process in place for computer usage: Teachers sign up to use a circulating cart of 24 laptops. They find the children more enthusiastic about learning using the computers than using paper and pencil. The children can work at their own rates and find revising and editing easy and less stressful. They are delighted with the limitless resources of information.

Secondary Teachers observed that computers offered visuals that aided understanding of concepts. Computers also facilitated student research, provided creative opportunities, allowed students to add pictures and other graphics to improve their reports and added professionalism to student work. Student volunteers who became peer computer mentors also became more active participants in class.

2. How has technology impacted student activities?

At the elementary level, computers provided targeted math activities based on student needs, gave instant feedback to students who took a test of their nutritional practices (eating habits), promoted peer cooperation, enabled students to learn about those things that interested them, and allowed students to vary the presentation of their reports using PowerPoint.

At the secondary level, computers fostered cooperative projects and enabled students to create and generate their own products, such as: prom tickets, which were previously purchased; menus for a restaurant; and voice over advertising video for a community event.

3. Is there evidence that students have increased their academic performance?

At the elementary level, computers served as an effective reward/ motivator for good behavior. For those students having difficulty doing schoolwork, the use of a computer became a reward for work. Students being allowed to use the computer or become a peer computer mentor resulted in students doing schoolwork that they would previously have left undone. With access to a computer, some students who had been reluctant to do reports would come to school and stay after school to do their reports on the computer. Because their writing improved using the computer, students' grades went up. Some elementary students did better on their textbook math tests after having engaged in math activities on the computer.

Similarly, at the secondary level, computers seemed to induce a greater number of students into completing their assignments. Teachers observed that hard-to-reach students became engaged in their schoolwork. Teachers perceived that students' knowledge increased; their understanding and problem solving skills improved; their information management skills increased exponentially; and they assumed more responsibility for their own learning. The computers helped students understand, organize, manage and save their learning and, in so doing, helped them become more responsible. The use of computers also resulted in students taking more pride in their work, as they created more professional looking products. Senior students were delighted to be able to scan college applications and to research scholarships on their laptop computers.

4. Does the use of technology seem to work for all students?

Technology worked well with all regular elementary and secondary students at the school. It gave students opportunities to explore new things and provided low socio-economic students with access to computers. It allowed students to be comfortable and confident with computers.

There are no Limited English Language Learners at this school.

For students with special education needs at the elementary level, technology was used to help a deaf student see printed what is being discussed using a speech to text machine. For those who are poor readers, computers enabled the children to do math activities without reading.

At the secondary level, students' use of computers improved their typing skills and made the students

feel more competent in school. One student with Downs Syndrome became so engaged with the technology that he improved his time on task, took pride in his work and became very competent in use of the video camera. Another student with special needs was so inspired that he has decided to pursue technology as a field of interest.

5. How do teachers use technology?

Instruction

At the elementary level, current and wide-ranging information is available on the web that is not available in library books. Information from and on the computer is presented on Smart Boards, i.e., interactive white boards. At the secondary level, students took virtual tours to see the works of Mexican artists and to visit a German Dinosaur Park. Students watch and listen to famous speeches – Martin Luther King Jr., Adolph Hitler, Winston Churchill. Students used a Modern Language Association Tutorial at Purdue for research. Students can independently find websites on designated topics to prepare more interesting and in-depth reports. Teachers gave some tests on line to help students who are absent.

Curriculum

Choteau School is a member of Montana's Golden Triangle Curriculum Cooperative. One of the benefits of belonging to the GTCC is support to implement standards-based instruction and the offerings of staff development. Elementary staff used the computers to learn about assessment in the areas of reading, math and writing. They were pleased to see, for example, what constitutes the six traits of writing and how the rubrics are interpreted on sample student work. With only guidelines and no textbook for teaching Montana history, the websites brought Montana history to life for the students. In science, "virtual cells" were studied without a microscope. Similarly, the secondary staff used the computer to see science in action – the West Nile virus and other up-to-date science information. In studying Celtic, Greek and Roman Mythology, the visual resources provided by the computer added a new dimension of understanding to a topic of mythology.

Management

Throughout the school, teachers used instant messaging to submit attendance and lunch counts. Teachers used the computer for keeping track of grades, organizing popular files for classroom instruction and submit their weekly lesson plans to the principal on line. The teachers also used the computer to make requisitions of materials. At the secondary level, students are used as peer computer mentors. Parents of secondary school children have computer access to their child's grades, assignments that are complete or not, and the teachers' lesson plans.

School Culture

At the elementary level, teachers shared their lesson plans with other teachers who had the same student. Secondary staff observed that the vocabulary of secondary students in the halls relates to computer techno-language. Because teachers find sharing very helpful, they would like the PLATO project to facilitate the sharing of curriculum, methods, and insights on the use of computers in education with other PLATO schools.

6. How the PLATO program has increased parent involvement?

At the elementary level, when the laptop computers were introduced, parents were recruited and volunteered to help students and teachers become familiar with the computers. When 14 hands went up for help, it was wonderful having parents assisting in the classroom. A parent volunteer was oriented to the computer along with the students. She became interested in learning how to use the computer and went to the library to practice her computer skills. She enjoyed accessing stories for her son. E-mail has proved to be a powerful tool for instant parent-teacher and teacher-parent communication.

At the secondary level, parents have computer access to their child's academic and attendance information. As a result, parents keep more up-to-date on their child's grades. They talk with their child regarding this information and to the teacher regarding their child's schoolwork. With parents checking schoolwork, some teachers report more assignments being completed, and some teachers report less calls from parents, because they can answer many of their questions online. This increased communication helps ensure that no child falls too far behind.

7. Examples of things teachers are proud of as a result of the Laptop Program.

Elementary Teachers

Elementary students surprised their teachers with their ability to use the computers and to be very careful with the equipment. The hands of the elementary pupils at the lower levels were too small to teach keyboarding skills, yet they were able to design PowerPoint story presentations with pictures, words and sound, interact with websites, and trouble shoot on their own. At the upper elementary levels, students began the year with few computer skills and over the course of the year became very independent in computer use. They learned to surf the web and find assignments. GATE students were able to decide on a science topic, search, focus their search, develop a presentation and present it. The teachers loved the portability of laptops. One teacher noted, "Designing a lesson plan format that worked for me was a learning experience, but gradually I learned a lot about my laptop and became comfortable with the procedure." A fourth grade teacher used the "Montana Kids" website for Montana studies; information about state symbols, Indian tribes, Lewis & Clark, mountain men, miners, missionaries, and vigilantes was readily available.

Secondary Teachers

Most secondary students used their laptops to research topics based on rubrics, and they presented their information in PowerPoint presentations they created. The teachers felt the students gained much more knowledge than in previous years when only the textbook was used. An eighth grade math teacher had students create their own spreadsheets with formulas and make graphs from the spreadsheet information. He noticed that students who normally didn't do well in class achieved more than usual, because they enjoyed using computers. A Spanish class was able to tour art museums in Mexico. The students got excited about Diego Rivera and Frida Kahlo. After seeing their art, the students were interested in learning about their lives together and apart. This same teacher gave students a computer assignment when she was out one day. The substitute reported the students went right to work on their computer assignment of evaluating different Spanish websites, and her presence as a substitute teacher was not noticed.

In an everyday 11th and 12th grade English class for low achievers, the teacher used the laptops extensively for research and writing projects. By the end of the year the students were completing an employment project, which they can actually use in "real life". Each student completed a personal

data sheet (an information source to fill out application forms, etc.), two different resumes, references, and an application cover letter, which he/she can adjust as needed. One teacher wrote tests on the computer to allow students to gain test-taking experience on computers since that will probably be the way they will take tests in college. The students were excited about this type of testing with its instant feedback. They could look at the results right away and correct any misinformation. When given a choice, the teacher found that most of her classes chose the computer test over the pencil and paper test. Students found learning using the computer more enjoyable and teachers found the computers made the teaching experience more enjoyable and effective.

Student Focus Group

Focus Group for NetSchools Evaluation
Choteau School, Choteau, MT

May 13 & 14, 2003

Time: 1 hour for Elementary and 1 hour for Secondary Students

34 Student Participants: 20 Elementary Students and 14 Secondary Students

The Elementary Students were composed of 4 students from each grade -- 2nd, 3rd, 4th, 5th and 6th

The Secondary Students were composed of two 9th, eight 10th, three 11th, and one 12th grade student

More than 30 Choteau students participated in two student focus groups toward the end of the 2002-03 school year. Following is a summary of their responses to six questions assessing the impact computers had on their learning.

1. Tell the ways you use computers to do school work.

Elementary

2nd grader-We write stories on Dragons and make PowerPoint presentations.

3rd graders – I like to practice addition and subtraction on the computer. We use the laptop computer to research and write about Mexico.

4th grader – For social studies, we study states and do research on Montana for a PowerPoint presentation.

5th grader – I like the dictionary on the computer because it is faster.

6th graders – For health, we did research on nutrition and alcohol on the internet and created PowerPoint presentations. I like to use the math quizzes on fractions on the computer. I like to write on the computer, save it on a floppy disc and print it out and edit it at home.

Secondary

Those who don't have computers at home are able to check out laptops. Five out of the 14 students participating in the focus group had checked out laptops. Rather than one computer for a class, each student has a laptop, which makes research much, much easier. When I type a report at school, I send the report home, without using a disc. I then can continue to work at home. With the computer you can "actually read it" and make it look professional.

2. As the result of having computers, do you feel you pay more attention to your school work?

All the students agreed that the use of and easy availability of laptops has made learning more interesting. They said they feel more engaged in school.

Elementary

2nd grader-Math seems to be easier on the computer.

3rd graders – I do my schoolwork faster to have more time on the computer. Computers make learning easier.

4th grader – Schoolwork seems more interesting, because it is more current, has more information, and with pictures and sounds it's more interesting.

6th graders – The internet has more math games available. Computers make learning and school more fun.

Secondary

With each person having a laptop, students can begin work immediately and not wait to get on one of the two computers in the library. Laptops are fun and faster than the wired computers. I like it that the laptops are portable and have more programs than the wired computers. We have made PowerPoint presentations in English, Science and Economics. Computer sites clarify our understanding of a topic because they offer different perspectives, visuals and sound. Computers enable us to strengthen our reports with visuals.

3. Tell how computers have changed your interest in learning and in school.

Elementary

4th grader – For my report on Indians, I found more information on the computer and became more interested in the assignment.

5th graders – The grammar games make schoolwork easier to do. After reading a book, a student wondered what kind of person would write such a book. She went to the web and was pleased to find the details of the author's life.

6th grader – After studying nutrition and its relation to health, the student was interested in applying what she had learned to her life style.

Secondary

Students used the computer to find our more background information on the war in Iraq. A student designed and developed a PowerPoint presentation for his classmates on his research on Foods of the World. His peers were impressed by the visuals and sound and, as a result, paid more attention. Computers enable students to explore and extend their learning of a subject way beyond the text.

4. Are there activities you now do outside the classroom as a result of the Laptop Program?

The elementary students could not answer this question. However, a secondary student was pleased to report he was able to help siblings and parents on the computer to do research and to make PowerPoint presentations. One student was pleased to be teaching her grandmother to use e-mail. Another student noted that he brought in software to make a movie to enhance his report. He was pleased to report he got a very good grade.

5. Give a specific example of something that you did and are proud of as a result of the Laptop Program.

Elementary Students

Use of computers- Elementary students liked using the computer to play math games, to review spelling and grammar, to learn about different music, and to research and write reports on such topics as the Blackfoot Indians, Harriet Tubman, and Okapis.

Facilitate learning-All students felt that computers helped them learn better and get better grades.

Presentation skills-The students were especially proud of their PowerPoint presentations, because they learned more about the subject since computers give more information than a book. One student was excited that she could add pictures, sounds, and special graphics to her PowerPoint book report. A 4th grade girl who did a report on the Blackfoot Indians liked the fact she could hear their music and see what the Indians dressed like.

Secondary Students

Individualization of instruction-One freshman student said that the laptop program allowed students the freedom of individuality. Instead of being limited to the same information the other students are getting, the teacher told the students to explore their own ideas. The student was proud to be able to express herself in her own way in her schoolwork.

Efficiency in completing assignments-A sophomore observed that before computers, she often handed her reports in late. With computers to use for reports, the information was always right at her fingertips and she could write whenever she wanted and even work at home. This year she has gotten everything done on time and sometimes early. Another sophomore reported he started science lab reports and English papers at school during study hall, and then e-mailed the information to himself. He was pleased that when he got an early start on assignments, he was able to pick up at home right where he left off without having to worry about unreliable disks or retyping of papers.

Ability to keep up with assignments when absent from school-A senior found he was able to look up his homework for class when he was sick at home and get the work done at home.

Enhanced reporting and presentation skills-A team of five juniors was assigned a World War II history project. They were to include a visual aid, a written report and a ten-minute presentation. The team chose the Holocaust. In their research they found pictures, which they printed out, so that the class could see the horrible things that happened, rather than simply telling about them. Their fellow students actually saw the pictures and emotionally experienced what the Holocaust was about. The team did not use any other research resources because the computer had everything. Secondary students could not imagine going back to dependence on books and writing with pencil on paper.

6. How do you think your computer knowledge will enhance your future?

There was agreement among the students that technology competency is essential for future learning and future jobs. You will need the computer to get information on job opportunities, or on what you will need to do to get a better job. One 6th grader wants to be a dentist. He feels the laptop will help him do his college work faster and neater and help him research dental and dentist information. Another 6th grader, who wants to be an author, feels her computer knowledge and skills will make it easier for her to become an author.

The secondary students agreed that if the computers were to disappear today they would have difficulty going back to paper and pencil and just books. Computers changed their lives as students. The laptops provided access to information they did not know existed or that was hard to find in books. The laptops made their work better, because it enabled the students to expand their understanding and enrich the content of their report with visuals.

Parent Focus Group

Focus Group on NetSchools
Choteau School (Pre-K – 12), Choteau MT
May 13, 2003 Time: 1 hour

~~12 Parents of 33 children: 10 parents of 18 elementary grade students and 8 parents of 15 secondary students~~

The parent focus was conducted toward the end of the 2002-03 school year. The seven questions were designed to elicit parental assessment of the impact of the laptop computer program.

1. Before your child started using computers, what experience did you have with computers? 0 None 3 Some 9 I am familiar with the computers

Parents participants reported using computers at work as a real estate agent, as an airline travel agent and as an on-line reservation manager of a motel. One parent was taking on-line classes at Montana State University in Great Falls. Another parent reported using her home computer for research on a school project.

2. As a result of using computers in school, have you seen changes in your child's attitude toward learning and school?

Parents have observed how the elementary school children light up when the Laptop cart in rolled into the room. They agreed that the computers make learning and school more interesting for all grade levels. Children enthusiastically share websites. One parent said her daughter chatted with PLATO peers in another area of the country about information she found on Orion websites. One senior was able to find information on colleges and scholarships on the web. A second grader asked her parents for her own Laptop computer

With parents of secondary students able to check their child's schoolwork and grades on-line, parents are able to discuss their findings with their child and make the child more accountable for his/her school effort or lack thereof and grades.

3. Have there been benefits for you and your family from your child's use of the computer such as buying products or services on line, email communication, interest in learning the computer, interest in adult education, and...?

Parents were pleased to become aware of the wealth of information available on the computer. One parent even reported communicating directly with her child's teacher on-line. Although most parents present were unaware of this option, they were pleased to learn of its existence. One mother was pleased to report that her daughter taught her how to set up an e-mail service for a motel that she managed.

4. Since your child started using computers, have you felt a greater need for you and your family to have a computer or gain computer skills?

All parents attending the meeting reported having access to either a home or work computer or both. The parents did not feel a need for gaining better computer skills.

5. Have you been more involved in your child's education/ school since your child has started learning to use the computer?

Parents feel they have not been more involved in their child's education but find checking homework easier because with a computer the child's work is easier to read. Parents who would have helped their children make drawings with crayons and cut out National Geographic pictures are having fun and are excited to find the many pictures on line for reports and for T-Shirts.

6. What specific benefits of learning to use computers do you expect for your child?

Parents are pleasantly surprised to find that their children are more willing to share their computer-written reports, and they work with the students on writing a better report (in terms of format, and spell check). Parents have observed that children using computers are under less stress when correcting schoolwork. Parents were pleased their children had an opportunity to learn keyboarding skills at the elementary level. Children were able to experience virtual learning in real time. This learning was especially exciting in the study of weather, experiencing surfing while it was snowing in Montana. Educational software programs are now available to help students during the summer. With hospitals and other institutions going paperless, the laptops will help prepare their children for the new workplace expectations.

7. How can the school computer program at this school be of more help to the community?

Parents would like to broaden the curriculum by offering independent study using computers to teach subjects, such as French, that are not available at the high school. One parent would like children to have more familiarity with good literature by offering it in a simplified, more digestible form from the computer. Parents would like to be able to see grades for their elementary grade children as well as those at the secondary level. When a child is sick, the parents would like to be able to pick up missed homework assignments on-line.

One parent was interested in the school offering Beta testing of new software. He also voiced concern about the schools' ability to upgrade the computers in the future and to provide the necessary staff training on any new software upgrades.

Parents suggested having a technician or technology teacher at the school available to teach adults how to write resumes and learn interview techniques and to train parents to use new software technology.

Survey Results

Teacher Survey

The data gathered and displayed in these graphs reflect the findings from the Teacher Technology Survey and Assessment adapted from a NetSchools Professional Development Instrument. The survey reports teachers' technology skills before and after project implementation.

Growth was seen in 45 of the 50 areas measured. The four areas where growth was not evident remained the same, as most teachers reported having previous knowledge of such rudimentary computer skills as: (1) How to use a stand-alone computer; (2) how to use a networked computer; (3) how to identify and use computer components; (4) how to start and shut down the computer; and (5) how to print documents.

Significant growth was seen in teachers' understanding and use of specific file management and word processing skills, the use of the computer for lesson planning and record keeping, and the use of the internet. Particularly significant was the growth in percentage of teachers reporting integration of technology activities into the curriculum and the use of e-mail. Further staff development is indicated in a variety of areas, but especially in the application of web-based activities, such as creating or copying web pages, where only some teachers report having such skills.

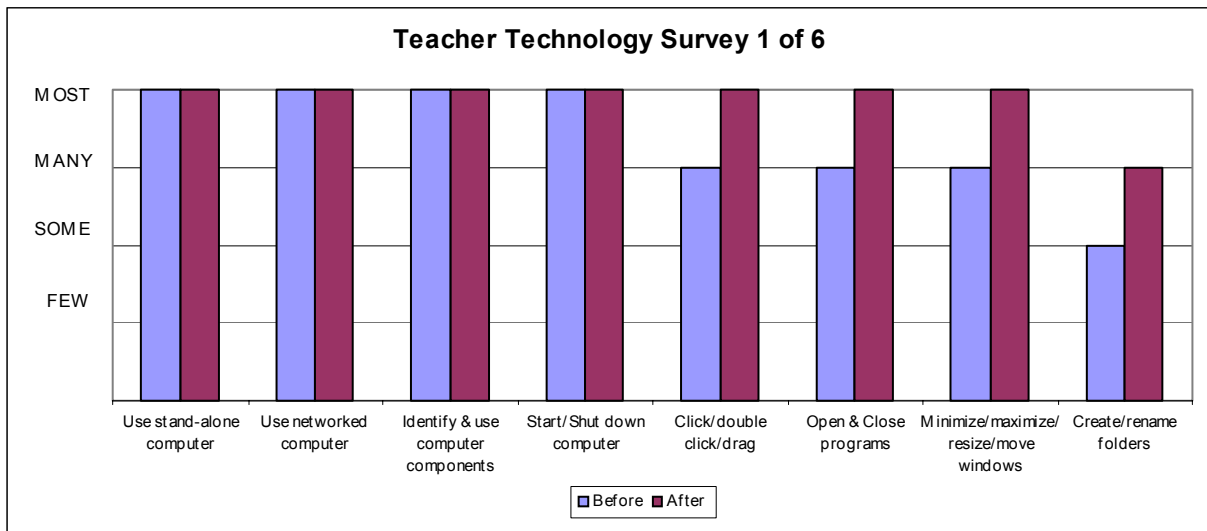
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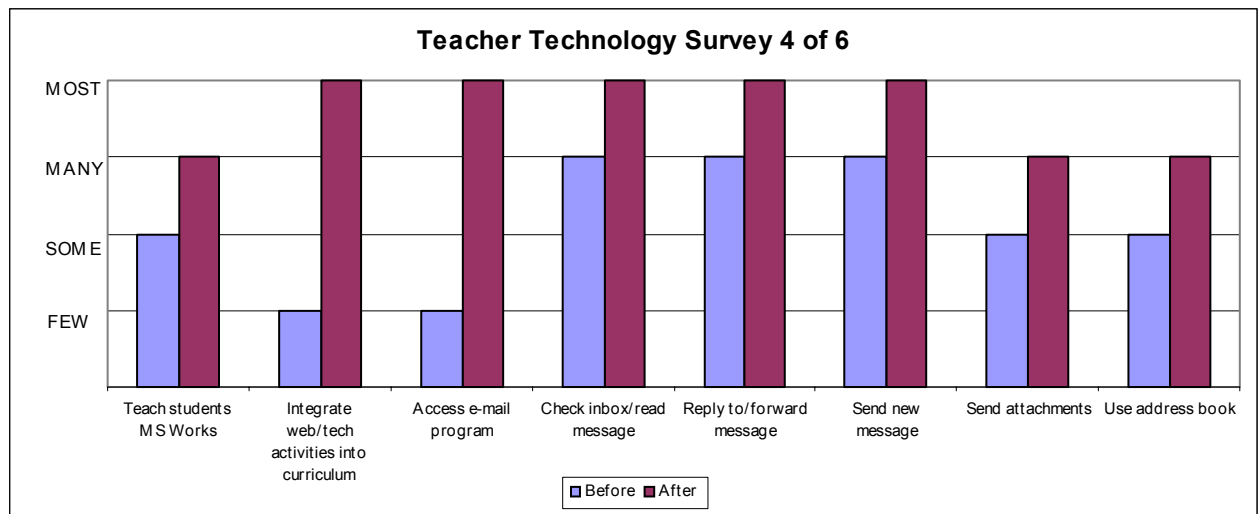
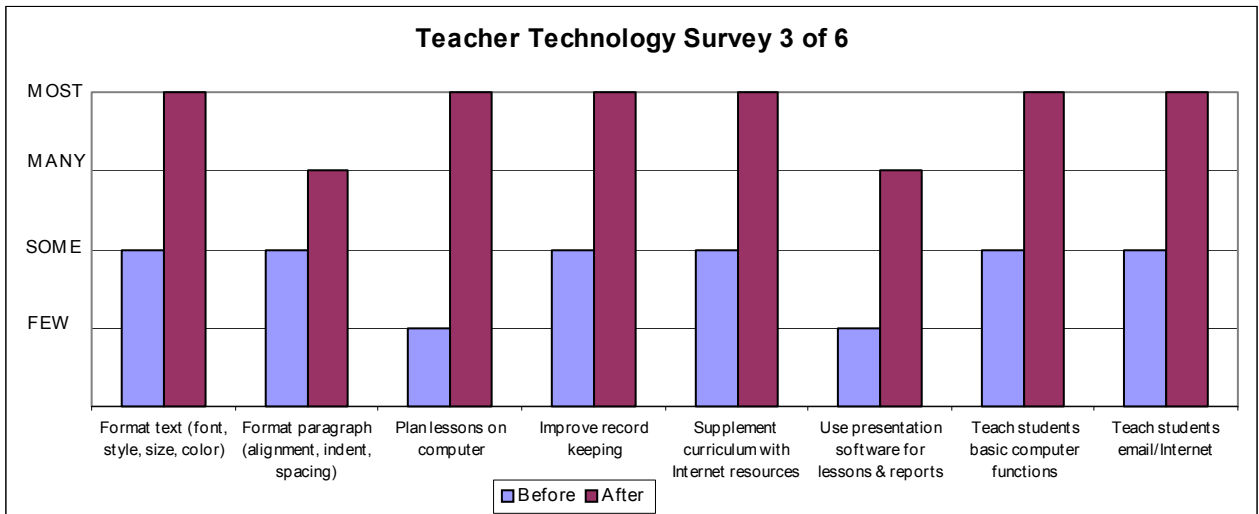
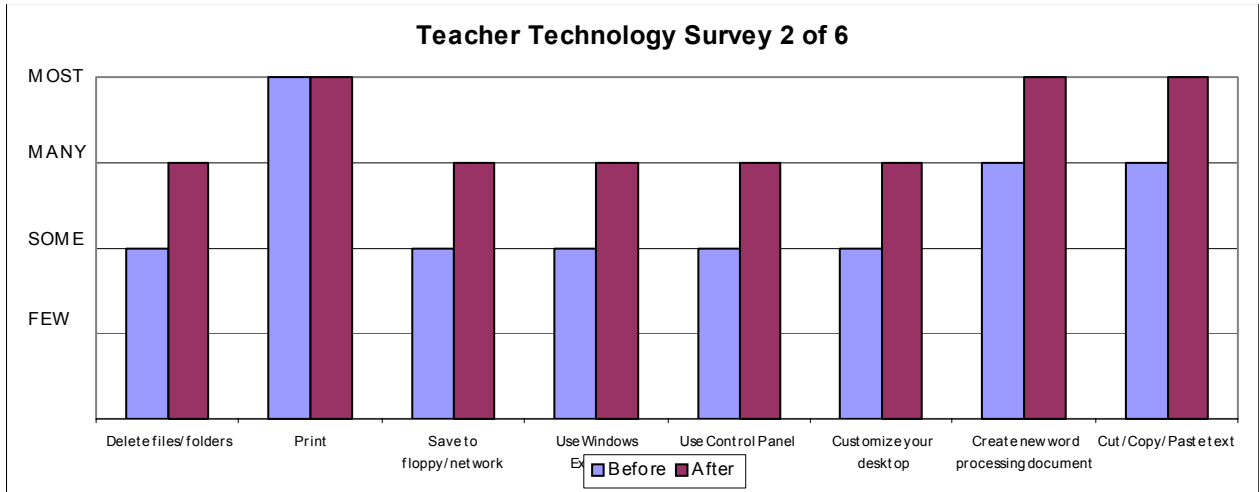
FEW – less than 25% of the group

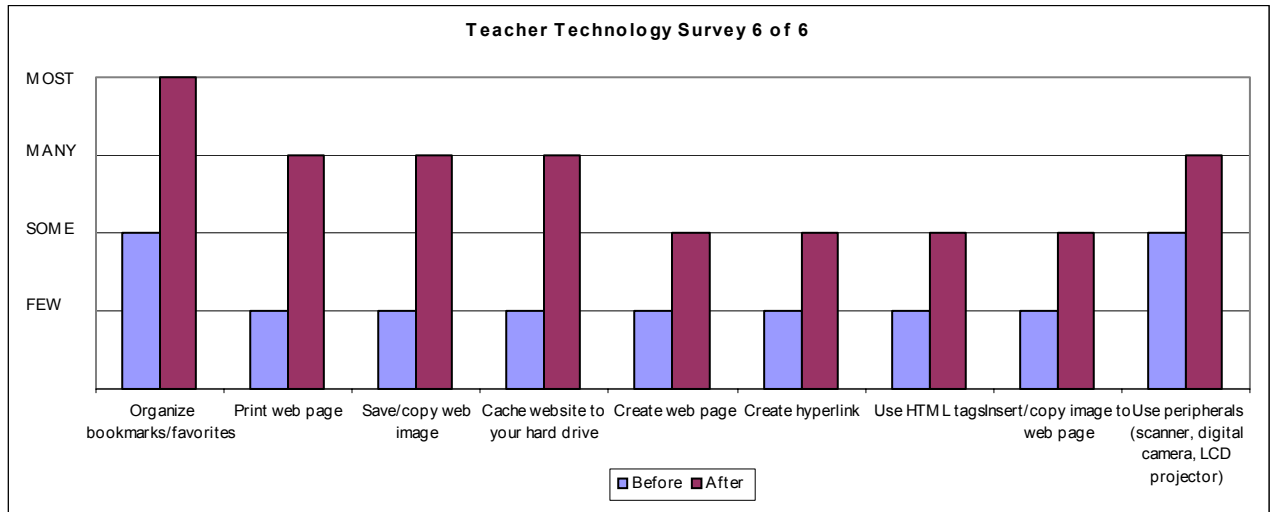
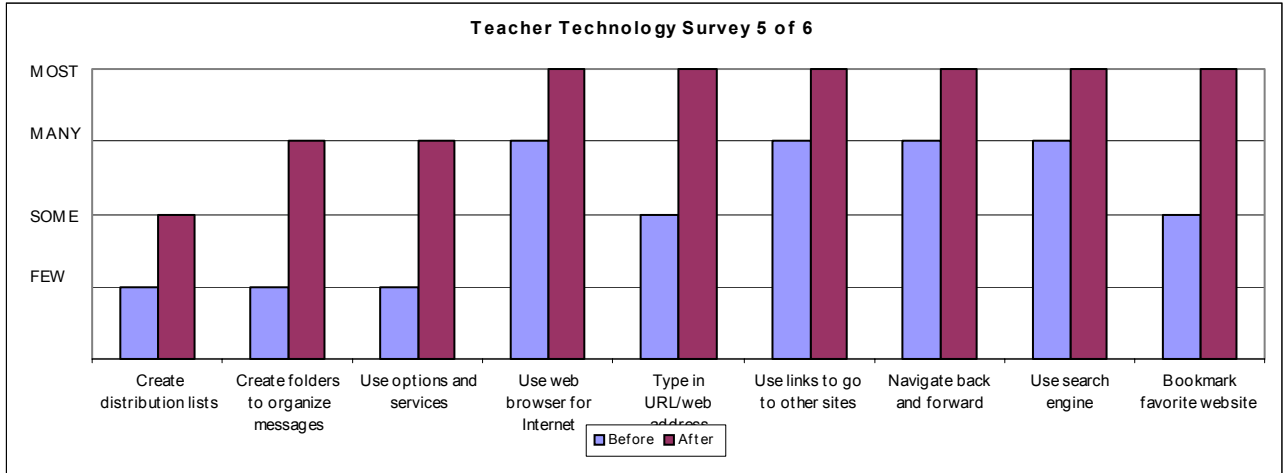
SOME – 25% to more than 50% of the group

MANY – more than 50% to 90% of the group

MOST – more than 90% to 100% of the group







Administrator Survey of Student and Teacher Usage

The data gathered and displayed in the following graphs reflect the findings from the Administrator Survey, adapted from the SouthEast and Islands Regional Technology in Education Consortium (SEIR•TEC's) Teacher Technology Survey. The survey, which retained its validity and reliability, assessed impact on the student (Part B), teacher and administrator (Part C) use and activities.

Administrators reported gains in all seven areas of student use of technology, with the most significant gain in the area of critical thinking. While administrators believed prior to the implementation of the PLATO program that students were motivated by computer usage, the lack of access to technology limited the impact of this motivational effect. With the introduction of the laptop computers, administrators saw “most” students motivated by the use of technology.

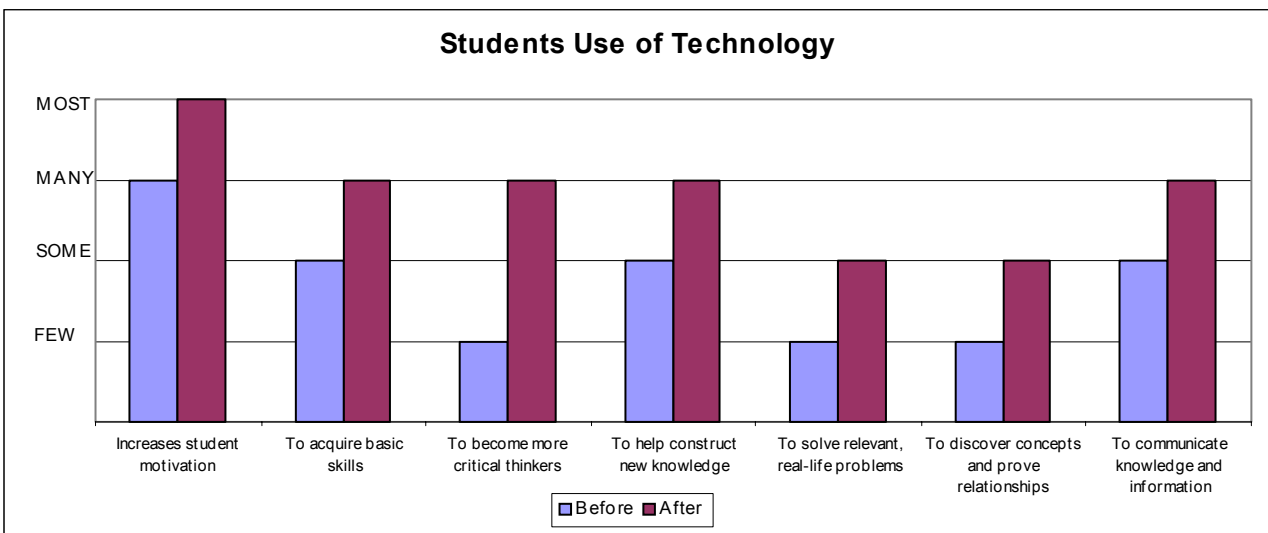
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FEW – less than 25% of the group

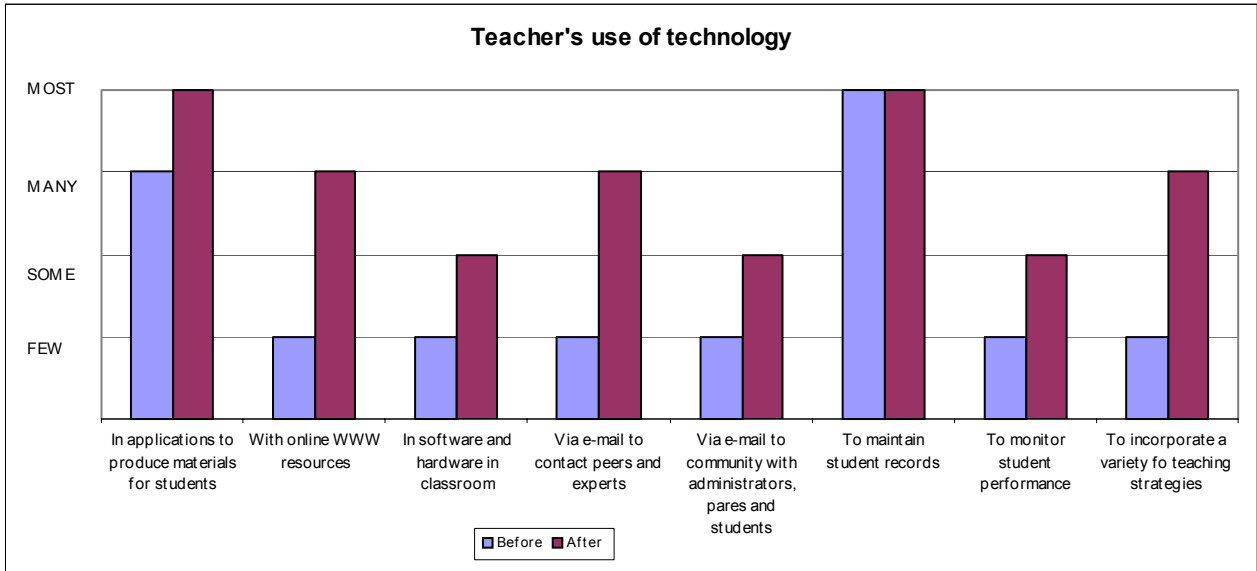
SOME – 25% to more than 50% of the group

MANY – more than 50% to 90% of the group

MOST – more than 90% to 100% of the group



assessing teachers' use of technology, administrators saw growth in seven of eight areas, most significantly in the use of web resources and e-mail and integration of technology into classroom learning. Since most teachers were already using computers for record keeping, to varying degrees, administrators did not report growth in that area.



The following graphs display the impact the implementation of the technology program had on teaching and learning in all segments of the Choteau Public Schools. Administrators identified the level of progress in the five domains and indicators on the Integrative Gauge of Progress.

Administrator Survey of Technology Integration

Administrators reported growth in all 13

indicators, with the greatest growth seen in the two areas that are inherent components of the PLATO Orion program, i.e., organizational support for technology and the availability and accessibility of appropriate resources. Growth in these areas was predictable, given the presence of the full-time, on-site Computer Coordinator and the ready availability of laptop computers. While administrators reported growth in both student and teacher engagement, both survey and anecdotal evidence suggests that higher expectations in these areas exist. Similarly, while there was improvement in community support and use of technology, clearly this component requires additional attention.

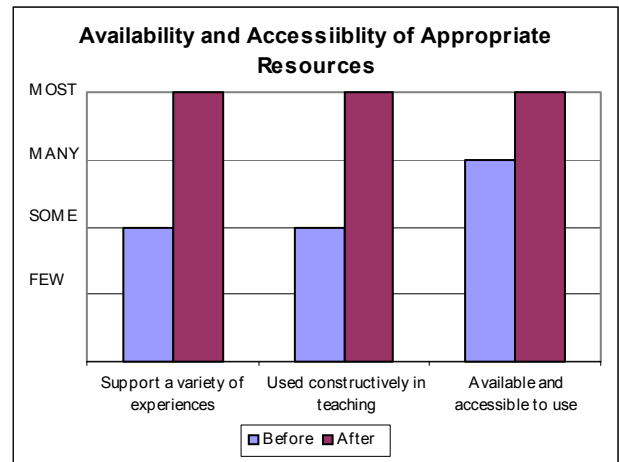
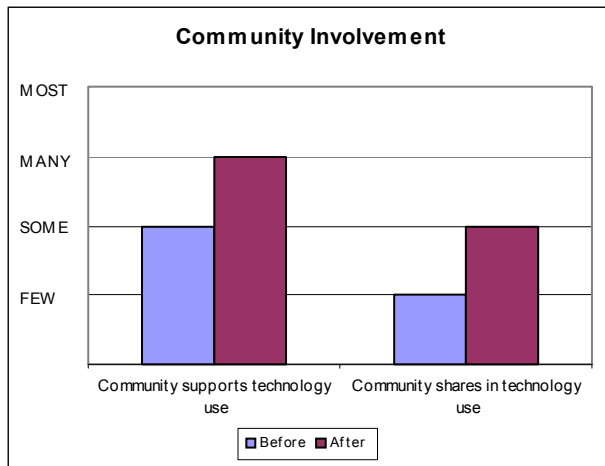
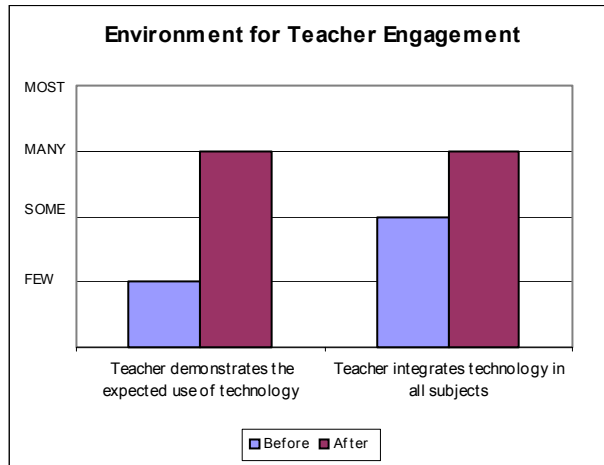
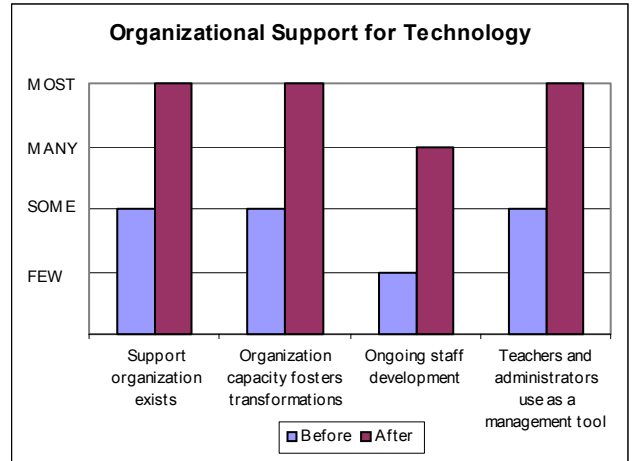
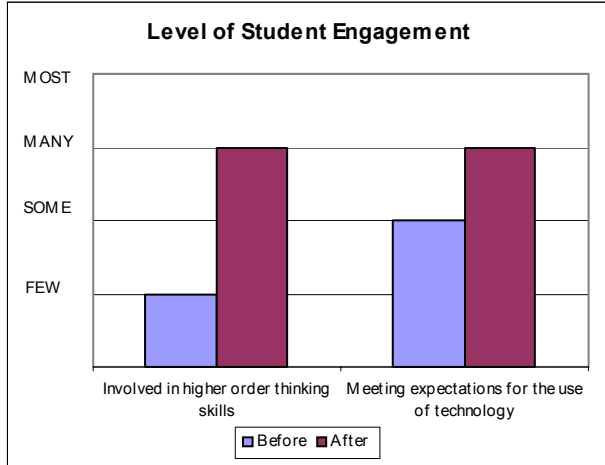
The findings of this survey are presented in table format illustrating the four levels of effectiveness from use **Before** NetSchools and **After** NetSchools Technology.

SCALE

FEW – less than 25% of the group
 SOME – 25% to more than 50% of the group

MANY – more than 50% to 90% of the group
 MOST – more than 90% to 100% of the group

CHOTEAU PUBLIC SCHOOLS



Scores on Iowa Tests of Basic Skills

Fourth Grade

Approximately 60 percent of the fourth grade students scored at the proficient or advanced levels in all areas of the ITBS in the spring of 2003. The goal is for all students at Choteau Elementary to be at the proficient level or above, in accordance with the standards of the federal No Child Left Behind Act. In the area of reading, 15 percent of the students were at the novice or nearing proficiency level. Language and math showed 26 percent of the students at the novice and nearing proficiency level. Science and social studies had 13 percent and 16 percent, respectively, at the novice and nearing proficiency levels.

Eighth Grade

The eighth grade results closely parallel the results of previous years. The class as a whole scored above the 85th percentile in all areas, and 88 percent of the students were at the proficient or advanced level. The number of students at the novice level was three percent.

Eleventh Grade

The eleventh grade scores ranged from 90 percent (reading) to 97 percent (composite) recording scores at the proficient or advanced level. This is a slight improvement over the previous year but may not be statistically significant. This particular class has the highest overall scores for the past three years of ITED testing.

The schools reported some increase in scores at all grade levels. Some of the increase is attributed to the use of PLATO Technology program.

Classroom Observations:

Student Acquisition of Technology Skills

Over the course of the 2002-03 school year, researchers visited each classroom in the project, and meetings were held with each classroom teacher. Each student in the program acquired at a minimum the following basic computer skills.

Use stand-alone computer (desktop or laptop)
Use networked computer
Identify & use computer components (keyboard, pointing device, disk drive, CD-ROM)
Start/Shut down computer
Click/double click/drag
Open & close programs
Minimize/maximize/resize/move windows
Create/rename folders
Delete files/folders
Print
Save to floppy/network
Use Windows Explorer
Use Control Panels
Customize your desktop
Create new word processing document
Cut/copy/paste text
Format text (font, style, size, color)
Use web browser for Internet
Type in URL/web address
Use links to go to other sites
Navigate back and forward
Use search engine
Bookmark favorite website
Organize bookmarks/favorites
Print web page
Save/copy web image
Cache website to your hard drive
Create web page
Create hyperlink
Use HTML tags
Insert/copy image to web page
Use peripherals (scanner, digital camera, LCD projector)

Findings

During the 2002-2003 academic year, the PLATO Technology Program contributed to:

Increased professional competencies of teachers and administrators in helping students reach challenging academic standards.

- 50 percent more teachers reported incorporating technology into a variety of teaching strategies since the introduction of the technology program.
- Administrators reported that at least 75 percent of the teachers demonstrated the expected use of technology, compared to less than 25 percent before the program started.
- Teachers and administrators took advantage of the on-site, full-time Computer Coordinator, professional development, and peer coaching opportunities to build their technological skills.

Increased academic performance of students

- More than 75 percent of students were involved in authentic, technology-based learning activities requiring peer collaboration and interaction as well as higher order thinking skills to solve real problems. This is up from 25%.
- Approximately 60 percent of the fourth grade students scored at the proficient and advanced levels in all areas of the ITBS. This represented an increase from previous years.
- The eighth graders scored above the 85th percentile in all areas. Only 3 percent of eighth grade students scored at the novice level.
- The 11th grade scores were slightly higher than those of the previous year. According to their composite scores, 97 percent of the students are reading at the proficient or advanced levels.

Increased student motivation

- 100 percent of teachers reported that technology has increased student motivation.
- Student volunteers became peer mentors, increasing their level of active participation.
- “Students didn’t realize how much reading they were doing as they used the computers, and even the lowest readers were motivated to read!”

Enhanced teacher lesson planning using web-based resources

- Between 90 and 100 percent of teachers integrated web activities into their curriculum.
- 25 percent of all Choteau teachers surveyed reported an ability to use technology to collect instructional resources, present information, and design instructional activities before the PLATO project. After Net Schools, 40 percent of the high school teachers and more than 90 percent of elementary teachers claimed these competencies.
- “I have really enjoyed being able to find websites, lesson plans, and ideas on how to teach concepts directly related to my curriculum”

Increased communication among students, teachers, and administrators

- Parents of secondary school children have access to their children’s attendance, grades, and assignment histories.
- “With laptop computers, teacher-administrator, teacher-teacher and teacher-parent e-mails are substantially higher!”

-
- All elementary lesson plans are submitted on line; all teachers in the building use a technology-based grading system; all attendance and breakfast and lunch counts are also submitted electronically.
 - Before Plato, less than 25 percent of teachers accessed e-mail, after Plato, more than 90 percent of teachers used e-mail.

Increased use of technology to promote standards-based instruction.

- Teachers used technology to explicitly connect their lesson plans to the standard.
- Nearly 100 percent of teachers surveyed taught their students to use word processing software and to navigate the World Wide Web to create products that demonstrate mastery of a standard; this was an increase of over 25 percent.
- Nearly 90 percent of Choteau teachers used technology to incorporate a variety of teaching strategies.
- “I have written a test for each class on the NetSchools site. The instant feedback that it [the computer] gives is helpful to the students.”

Increased technology and information literacy of students

- Teachers reported a 25 percent increase in students’ ability to acquire basic skills using technology.
- 25 percent more students were able to communicate knowledge and information using technology after one year of the PLATO project.
- Students at all grade levels have conducted research on the internet, produced power point presentations, and used word processing software to create documents to provide evidence of their learning.

Increased community involvement in learning technologies

- Adult Education in Technology classes have a high enrollment in courses scheduled for 2003-04. The classes were filled before they were announced in the local paper. Among participants are over 15 Choteau Schools staff members.
- Students have used technology to create prom tickets, restaurant menus, and an advertising video to benefit the community.
- After implementation of the PLATO project, administrators reported a 25 percent increase in community support for technology use, and in community involvement in technology use.
- Students are often the first to introduce their families to the possibilities that emerge with technology.

Facilitated the implementation of the No Child Left Behind Law

- Web-based education resources were aligned to state standards and integrated into the curriculum.
- Systems for receiving reports on-line were created.
- Test preparation strategies for improving student performance on state assessments were enhanced.

Conclusion

The Choteau Schools have used technology both to replace many administrative tasks that have traditionally been cumbersome and time-consuming and, more importantly, to change the way the school district and community approach education. Many teachers and administrators in the Choteau Schools have taken on the role of learner and have challenged themselves to increase their technological competencies so that they can pass those essential skills on to students, who often pass them on to their family members to continue the cycle of learning.

As the data collected by CRF and Associates reveals, the implementation of the PLATO program has resulted in increased professional competency of the teachers and administrators in using technology effectively in reaching challenging academic standards. It has increased the technology and information literacy skills of students and has increased community involvement in learning technologies. Finally, the introduction of the Plato program has improved the learning environment at Choteau as teachers increasingly use digital content and networked applications to further standards-based instruction. This initial year of implementation has provided a solid foundation, with a committed and well-trained staff, a developing expertise among teachers and students, with community support and assistance.

The consistent efforts of the administrators, teachers, parents, and other members of the Choteau community have clearly made a qualitative and quantitative difference in the education of the entire village.