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UMI
A CASE STUDY INVESTIGATION OF LAPTOP TECHNOLOGY FOR ART EDUCATION/VISUAL CULTURE IN AN INTEGRATED/INTERDISCIPLINARY CURRICULUM

DISSESTATION

Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy in the Graduate School of Ohio State University

By

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The Ohio State University 2001

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Professor Vesta Daniel
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2001
In this case study I investigated the experiences of 12 teachers, from several disciplines and grades seven through nine, who went from the traditional classroom teaching and learning environment to electronic (laptop) classroom teaching and learning, and one librarian at a Country Day School in a large Midwestern Metropolitan City.

Case Study methodology data was triangulated using interviews, observations, audio recording, and completed student assignments.

Interviews were conducted using nine-open-ended questions pertaining to educational format change, laptop classroom experience, changing of lesson plans, system innovation suggestions, technology applied to art and interdisciplinary curriculum, student outcomes, and teaching with laptops. The questions were analyzed for direct responses, comparison of responses, similarities and differences noted, and conclusions drawn.

Notebook accounts reflected that day's schedule of interviews and observations by teacher, subject, and grade. Observation data was noted during normal class periods. Interviews were tape-recorded and observations documented.
Researcher's interest was in the laptop classroom, as a whole, and how art education would fit into the laptop environment. The research included laptop classroom development of an integrated/interdisciplinary curriculum (IDC) where art is one the four disciplines assigned to this IDC.

The study investigated applications of art/visual art within the IDC. CDS art curriculum may be considered in terms of fine art (e.g., painting and drawing) and visual art (e.g., digital imagery, photography, and multimedia).

In a couple of the CDS IDC group meetings, several issues arose regarding IDC group's approach to the IDC development, relationships among disciplines, links across disciplines, adding a new subjects, and time constraints for each discipline without any solutions at that time. Later, resolutions were sought and found.

Outcomes in laptop classrooms impacting teaching and learning are positive. Teachers with access to the Internet and Web sites feel their teaching has been enhanced and original lesson plans did not necessarily have to be changed, just their teaching style.

Student documents and products were analyzed by degree of student understanding of teacher assignment. Degree of understanding was determined by comparing teacher criteria to student product.
Dedicated to Dr. Patricia Louise Stuhr
ACKNOWLEDGMENTS

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experience.
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CHAPTER 1

INTRODUCTION

Background of this study.

America is witnessing the rapid growth of educational technology within the public schools. Educational technology is as wide-ranging and as diverse as the present day student populations. Technologies that enhance the instruction and administration of schools are widespread (Persichitte & Bauer, 1996; Ritchie & Rodriguez, 1996).

In 1996, there was much ado about the establishment of computer-Internet, online, classrooms. The U.S. Secretary of Education sanctioned the schools' declaration that schooling via the Internet accomplishes the same thing as traditional schooling and more. If true, and if art education ever expects to become the fourth “R” in the educational system, it must utilize interactive technology, computer-Internet, online, to assume a leadership role in this transition (Dunn, 1996).
Reportedly, some schools boast of greatly improved attendance with the implementation of computers in their schools. Some school administrators are convinced that every single child will do more work and better work with a computer because images appear on a monitor and the students will pay more attention (Oppenheimer, 1997). "What is it about interactive technology that encourages children to persevere in the quest for new knowledge; and what is it about schooling that often does just the opposite?" (Dunn, 1996, p. 8).

Children, from an early age, have become accustomed to the electronic teacher, the television screen. They have been reared on immediate, high-intensity, visual stimuli from the television screen. Transferring this same experience to the use of computers, it is easy to see that these newer media exposures make going to a traditional classroom, using paper and pencil, and listening to a teacher seem very dull and boring. In the next decade there will be a new generation of computer Internet literate students who demand to be taught from the computer Internet connection, the Web page (Letscher, Phillips, Young, Harris & Tibbs, 1998).

President Clinton campaigned for a bridge to the twenty-first century where computers are as much a part of the classroom as blackboards. The President's administration accepted the goal of "computers in every classroom" with costly enthusiasm. The push for computers to replace traditional classrooms was outlined in 1996 when the National Information Infrastructure Advisory Council, the Clinton Administration's technology task force, suggested reducing art classes (e.g., visual art and music), shop classes and field trips in order to shift those funds into...
computers. Reducing class size, improving teachers’ salaries, expanding hours of
instruction - all were considered less important than giving students computers
(Oppenheimer, 1997).

However, voices of opposition arose to the costly suggested computer-Internet
classrooms. According to opponents there was a need for an indepth look at what
was happening to the present educational system before committing to a new
educational method (Noble, 1996). One concern was the source for funds to
purchase, maintain, and upgrade computers, software, and communications services.
To be sustainable over the long run, resources must come from reducing other types
of expenditures (Dede, 1996).

In 1997, opposition raised questions about whether students’ ability to learn to
solve problems, think critically/creatively and develop mental discipline would be
improved or endangered by the use of computers. Would it not be more profitable
to use both of the educational methods, traditional and electronic classrooms, in lieu
of one over the other (Hope, 1997; MacMillan, Xifung, & Timmons, 1997)?

The voices of reason surfaced. They came from the social and psychological
communities, specialists in childhood development and those on the frontlines, the
teachers, cautioning leaders who strongly supported the new computer era.
Teachers in schools saw computer use as merely an amplifier, encouraging both
enlightened study practices, and thoughtless ones. It was suggested that the possibilities of using computer technology poorly outweighed the chance of using it well (Oppenheimer, 1997).

A Department of Education study of eighth-graders conducted in 1997 found “Most American children are infrequently or never given serious instructions or performance opportunities in music, the arts or theater” (Schmid, 1998, p. 5A). Nearly one American school in five fails to offer art or music classes, even once a week - according to this study. Many schools, especially those in big-city districts, have had to cut spending on arts classes due to decreases in tax base, and increases in spending on computers (Schmid, 1998).

In 1998, Education Secretary, Richard W. Riley said in a statement accompanying the first National Assessment of Educational Progress in the Arts:

In this age of information and when our economy is increasingly built on generating ideas, it is a serious mistake to shortchange our children’s instruction in the arts. Arts education can be a creative way of connecting young people into education. The arts help them learn to solve problems, think creatively and develop mental discipline (Schmid, 1998. p. 5A).

In an article titled “School Reform: Reducing Class Size Unlikely to be a Panacea”, the Columbus Dispatch reported that President Clinton and Congress agreed to spend $1.7 billion as a down payment on a $12 billion, seven-year plan to put 100,000 teachers in America’s elementary school classrooms (November 14, 1998, p. 14A). The goal is to reduce class size in first through third grades from a national average of 22 pupils per classroom to an average of 18. Smaller classes are
said to decrease teacher pupil ratio, thereby raising academic achievement. In 1996, the President and Congress were planning to spend $40 to $100 billion taxpayer dollars over the next five years for computers to be placed in every classroom. But in 1998, all groups did an about-face, opting for more and stronger traditional classes in every school including the arts and others, reducing cost to taxpayers by $30 to $85 billion dollars.

Many critics have commented about the class-size proposal, but there is little conclusive evidence that reducing class size significantly improves academic performance. And the costs of such a reduction are staggering. The same money could be directed to other reform efforts such as improving education and training of teachers. If Johnny’s academic problems are the result of little support or discipline at home, a smaller class size won’t matter; an inept teacher remains inept whether the class contains 15 pupils or 25 (School Reform, November 14, 1998, p. 14A).

**Statement of the problem/research question**

Educators are deeply divided over whether students educated in electronic classrooms will or will not have a significantly higher level of academic achievement than those students educated in traditional classrooms. A study conducted by McKinsey & Company (1995) found, after reviewing 265 studies, that students receiving computer-assisted instruction learned 30 percent faster than students who
received traditional instruction. Students receiving instruction in the electronic
classrooms could gain a year's lead compared to students receiving traditional
instruction for every three years in school. Though the statistics sound impressive,
there is much dissension among educators regarding the validity of research
concerning learning via the electronic classroom. Researchers found that schools
whose students used laptops learned 30% faster and are more mature and articulate.
Dissenters declared the research invalid, ambiguous and done under simulated
conditions. They are cautioning the readers not to take the results seriously (Fox,
1998). Real-life research is required to determine the quality of learning via laptop
computers and required peripherals.

My case study at the Country Day School (CDS) explored the shift
from traditional classrooms to electronic (laptop) classrooms, the impact on
teaching and learning via integration of the Internet, and the effectiveness and
enhancement of teaching and motivation for learning via the integrated
interdisciplinary curriculum. Some basic or general information was required to
establish a foundation for application to art/visual culture education. In the
literature review I noted that if art was to become a major discipline in the school
curriculum it would come in with technology. Apparently this might be true, art is
referred to by some as “visual culture” (Mirzoeff, 1999; Ballengee-Morris & Stuhr,
2001). The inclusion of art in the CDS ninth grade interdisciplinary curriculum is
referred to by CDS art department as “visual literacy.” It is used as an authentic
discipline in their integrated/interdisciplinary curriculum.
Ohler (2000) writes regarding visual literacy:

The fact that the multimedia environment of the Web, as well as much of what we experience through our computer, requires students to think and communicate as designers and artists. The age of art has arrived, leaving behind the text-centric world that has guided us for so long. The language of art has become the next literacy (visual literacy) – or art becoming the fourth “R”. (p.16). (Italics are mine).

Art by either term “visual culture” or “visual literacy” combines the breadth of an interdisciplinary major with a precise focus on visual media. The interdisciplinary structure brings together approaches to visual media that would usually be separated by discipline. Students have a unique opportunity to acquire critical skills in reading and analysis of media texts with those in various modes of media production. Familiarity with media, either for its academic or industrial applications, enhances one’s understanding of any field in the humanities or social sciences today.

When I first conceived of this study, I intended to compare the teaching and learning in the traditional classroom at CDS with those in the current electronic (laptop) classroom. However, after beginning the study I quickly learned that I needed to change my focus. My focus turned to the relationships and practice of technology, art education, and integrated interdisciplinary curriculum at CDS.

I also studied three major areas based primarily on data received from my classroom observations and interviews. They were changes in the teachers’
knowledge base, changes in their strategies or pedagogy, and changes in teacher attitudes on being required to use a new educational format, the laptop computer, at the Country Day School.


According to Pea (1998):

When we are trying to determine the effectiveness of educational technologies we are confronted by several methodological and practical issues. We need to remember that technology is only one component of an instructional activity. Assessment of the impact of technology are really assessments of instructions enabled by technology, and the outcomes are highly dependent on the quality of the implementation of the instructional design, i.e., teacher's design or software design.

"Social contexts" of technology uses are crucial to understanding how technology may influence teaching and learning. Whatever else is "effective," it is not educational technologies per se. The social contexts are all important. They include not only the technology but its content, the teaching strategies used both "in" the software and "around it" in the classroom environment itself. It is a recurrent finding that the effects of the best software can be neutralized through improper use, and that even poorly designed software can be creatively extended to serve important learning goals.

A methodological issue to confront are the standardized achievement tests. They may not measure the types of changes in students that educational technology reformers are looking for. There are the outcome measures that go beyond student achievement, because student achievement may be affected by students attitudes about themselves, school and learning, and by the type or interactions that go on in schools. In addition, technological changes are likely to be nonlinear, and may show effects not only on student learning, but also on the curricula, the nature of instruction, the school culture, and the fundamental ways that teachers do their jobs. (p. 38)
Purpose of This Study

Arts education can be a creative way of connecting young people into education. The arts help them learn to solve problems, think creatively and develop mental discipline (Schmid, 1998). In the Comprehensive Arts Education Ohio Model Competency-Based Program, it is stated that the arts are the epitome of excellence in life, work, and education. Arts education creates school environments which are more conducive for students to learn, more exciting for teachers to teach, and more enticing for parents and communities to visit. When students study the arts, they learn to work, think, feel, see, move, talk, and hear in the most profound and basic way available to humankind (Comprehensive Arts Education, 1996). In this time of reform with emphasis on technology, how will the new educational method at CCDS, the electronic classroom, meet the criteria for the arts as outlined in their Competency-Based Program?

A lot of theoretical information exists in professional literature about the pros and cons of changing from traditional educational methods to computer usage. In Oppenheimer’s article, “The Computer Delusion,” he stated “most knowledgeable people agree that most of the research is not valid because most of the research that has been done was under simulated conditions” (p. 52).

The purpose of this study was to describe real-life conditions concerning the types of teaching and learning in an electronic classroom at CDS. I was looking at the possibilities and challenges of the electronic classroom with a focus on art/visual culture education in an interdisciplinary curriculum format.
With the success of the Microsoft-Toshiba program "Anytime, Anywhere, Learning" (AAL), which provided laptop computers to a number of schools in Australia, Microsoft initiated AAL in the United States with 52 pilot schools that included both public and private schools. One of the public schools was Mott Hall, Harlem, New York City, New York, where more than 90 percent of the students live in poverty and has the largest number of bilingual students in the country. Another public school was in Beaufort County, South Carolina. More than half of their students come from families who qualify for federal free-and-reduced-price lunch program that is a common barometer of economic need. Both public schools raised funds locally, regional and nationally to help cover partial payments and leases for their computers. I chose a private school, Country Day School in a large metropolitan city in the Midwest to do my study because their traditional classrooms had all been converted to electronic (laptop) classrooms and it was only a two hour drive from my home (see Fig.1).

I included information on two of the public schools to highlight the fact that public schools had been selected for this program as well as private schools; the public schools went the extra mile to make sure they were funded so each of their students could have his or her own personal laptop. It was apparent that funding for the private school may have already been in place through endowments or more easily obtained than funds required for the public schools laptop initiatives.
Each chapter will provide information as follows:

Chapter 2 provides an overview of the Country Day School (CDS), the faculty and staff, and the curriculum.

Chapter 3 offers a literature review of positives and negatives regarding the computer usage in the classroom.

Chapter 4 is the methodology used in conducting this case study on laptop usage in the classroom.

Chapter 5 responses to the nine questions and descriptions of my classroom observations.

Chapter 6 provides an analysis of the data collected in chapter 5.

Chapter 7 provides an overview of the impact on teaching and learning, implications for the field of art education, and suggestions for further research.
CHAPTER 2

COUNTRY DAY SCHOOL,
PERSONNEL, AND CURRICULUM

Figure 1: Country Day School

Introduction

This is one of the Microsoft-Toshiba Anytime Anywhere Learning (AAL) pilot schools. In this chapter I will give a little history of the school and how it turned into an all laptop classroom school. I will discuss its curriculum, and how it is assisting other schools desiring to establish an all electronic classroom school.
The Country Day School (CDS), a private school founded in 1926, is a coeducational school with a reputation for innovative use of technology. Country Day School fulfills its mission by providing the best in faculty and staff who build on each student’s uniqueness and encourage active participation in a varied curriculum, rich in meaning. The school advocates a diverse community as an educational imperative and builds community through opportunities for student leadership and parental involvement. In above average learning facilities and in a climate conducive to intellectual, social, physical, and artistic development, the school instills a lifelong love of learning (www.countryday.net).

Computing at CDS began in early 1967. Its founder was… a physical science teacher. He and one of his eighth grade students developed a close relationship through a mutual interest in amateur astrology, observing lunar occultations (when a star or planet is hidden by the moon, italics are mine). Computing activity at CDS initially arose from their desire to analyze the occultations timing data they collected. Their first data reduction program of occultation consisted of a deck of cards that had to be run through a mainframe computer at a local data processing firm. In the Fall of 1967, computing was introduced into the curriculum, at first on a relatively informal basis, and then as a tool for the physical science classes (www.countryday.net).

In 1974, it was one of the first schools to have a minicomputer lab and terminals. In 1984, it was again among the first with desktop computers for
instructional use. A few Apple computers were assigned to special uses but were not used school wide like the laptops. A decade later, school administrators, teachers, and parents knew the time had come for another technology revolution. They saw Microsoft's Anytime Anywhere Learning (AAL) program as a way to immediately empower all students to learn at their full potential and to better prepare them for the real world of the workplace.

The Country Day School teachers report that Anytime Anywhere Learning boosts students' problem-solving skills and intellectual autonomy. Because the mechanical processes of typing and retyping are minimized or automated, students can spend more time in creative and critical thinking. Roles are also changing, as students learn from one another and teachers learn from students.

The Anytime Anywhere Learning Program is an enrichment and extension of Country Day's traditional academic curriculum, bringing the power of modern technology to learning activities across all disciplines. All students gain competency in the use of computers, not to become technical wizards or cybergurus, but rather to become completely confident and comfortable with the tools of the modern public workforce.

Critical to the development of the AAL program is the building of a new network throughout the campus. Every classroom and office is wired with network connections. Students have access to the network in study hall, libraries, the cafeteria, and even in the corridors. These network access points, called "drops," allow connections for up to 23 students simultaneously, thus making it possible to
have students connected to the rich resources of the Internet whenever the teacher feels it will benefit the student’s learning activities. The network uses the LAN (local area network) and the WAN (world area network). The most significant enhancement that the AAL program brings to the CDS community is the new lines of communication that become available to all member of the three groups most important to the school’s success: students, faculty, and parents.

Every student in the fifth through twelfth grades has a laptop that they own, carry to every class throughout the day, and take home in the afternoon for assignments. Every teacher in every subject area, from reading to math, from arts to physical education, uses a laptop to plan lessons, provide instruction and evaluate learning. The school has a contract that parents sign holding them responsible for the safety and care of their child’s laptop (see Fig. 2).
The Country Day School (CDS) mission statement is to help each student reach his or her potential by providing a strong academic program offering opportunities to participate in a wide variety of activities, developing responsible students who respect others, embracing a diverse community, and building self-confidence and self-esteem.

CDS is comprised of four educational divisions. Each division provides programs of the highest quality that foster a lifelong love of learning and emphasizes opportunities for growth in all areas of development. The divisions are 1) early
childhood school, children 18 months through kindergarten; 2) lower school, grades 1 through 5; 3) middle school, grades 6 through 8; and upper school, grade 9 through 12. CDS has a total enrollment of 860 students and a faculty and staff of 150. Out of this number of students 18.6% are minority students.

With ownership of their laptop, students take ownership of their learning, developing their own learning paths, and becoming more fully engaged in exploration and investigation. Laptops become a normal and natural part of every day and an extension of every student. Students love their laptops. They become very attached to these little learning partners, giving them names, customizing them to reflect their own personalities and caring for them, like any skilled worker cares for their tools.

Students using laptops in class are able to focus on higher level thinking skills. In a traditional classroom, a research assignment on the extinction of a species typically would focus on teaching students how to find information. With technology, finding and retrieving information, a great deal of information, is so easy that the emphasis for learning can shift from collecting information to analyzing and evaluating information.

Though CDS has an overall mission statement, they have also implemented a mission statement for the technology program at CDS. It reads:

Computer technology at Country Day School has as its purpose to support, enhance, and extend the educational experience of the students and faculty though appropriate integration into the curriculum. Universal access underlies the development of the
technology program, based on the belief that all can benefit and can contribute to the life and mission of the school by the use of these powerful tools for communication, leadership and creativity (CDS, 1999).

To accomplish its mission, the Technology Department is guided by the following beliefs:

- It is the responsibility of the Technology Department to provide a vision for the school's use of educational technology that will maintain and advance its position in the forefront of technological innovation in schools. Country Day School will thus provide both leaders for society and leadership in educational methods and materials (www.countryday.net).

- Universal access to technology fosters active, student-centered learning, because students have personal control of information in a way not possible without such access (www.countryday.net).

- Academic offerings in the area of technology must provide a solid foundation for all students in computer fundamentals. We should also provide an introduction in Computer Science as a field of study for those interested in that career path (www.countryday.net).

- A strong program of faculty professional development in the area of technology is an essential to our ability to innovate and appropriately apply technology to our educational programs (www.countryday.net).

- We must achieve a balance between planning for a future ever more technologically sophisticated and the maintenance of a cost effective infrastructure that supports the school's current programs (www.countryday.net).

- We must provide maintenance and support services necessary for the campus community to effectively use technological tools without unreasonable downtime (www.countryday.net).

CDS entered computer technology early, but it was applied to a chosen few.

Not every teacher within the school was required to use computer technology in their class. The early computers at CDS were Macintosh desktops. Signing on to the AAL program required the school to use the Windows-based operation system.
The benefit of moving to the Microsoft Windows operating system from the school's former Macintosh computers has been one of the happier aspects of the program. Parents "heaved a sigh of relief," according to the director of technology, when the school finally decide to adopt the platform that parents knew their children would encounter in the workplace. And teachers accustomed to the Mac received their own Window-based portable computer and were pleasantly surprised to discover it was easy to use (www.countryday.net).

The three major concerns that were evident from the literature review dealing with the use of laptop technology were technology interferes with basic learning, technology divides the community, and technology limits interaction. Another concern that troubled tenured teachers at most every school opting for the new educational format was they would be forced to retire because with the computer technology present, the schools would be hiring computer literate teachers. Further fears were: not being able to learn how to use the new technology, not having time to learn, or simply thinking this change was unwarranted, and having to rewrite their tried and true lesson plans to be used with the new technology (Bush, 2000; Carroll, 1999; Gelernter, 1998; Herr, 2001; Houston, 1998; Lane, 2000; Oppenheimer, 1997; Riskind, 2000, etc.).

CDS realized they could prove the concerns were unfounded. They assured teachers they would not lose their jobs. They would be given time to learn how to use both computers and software. In fact, CDS had training seminars for their
teachers and provided substitute teachers for the classes so they could attend the seminars. Also, the parents were asked to attend the same seminars as the teachers. This brought together teachers and parents working toward a common goal, bringing together the community to work together in teaching their children via computers.

The reality dispelled the first concern proving technology generates lifelong learners, provides a competitive edge and mirrors the workplace. The reality that dissolves the second concern was technology gives impetus for building a learning community, encourages multi-methodologies, and emphasizes skill development: presentations, communications, and research. And the third concern was dispelled because technology actually provides opportunities for leadership, levels the learning and social playing fields, and improves the level of respect and responsibility in the school community. Additional benefits are an enhanced school Mission, dialogue is focused on learning, and excitement is generated about new possibilities. CDS strategic planning took a systems approach identifying and defining the needs, creating the vision, encouraging Board support, and involving members in the planning, establishing the appropriate policy, creating an Educational Committee of the Board, and promoting key personnel. Strategic implementation was to be open and honest as a means to success, network with other schools, partner with parents and community, and conduct on-going evaluation. An initial budget had to be
established, followed by on-going operating capital, and a five-year plan. Sources of funding would come from the school, parents, businesses, and endowments to the school; the policies had to be written and approved.

One of the frequently asked questions (FAQ) was “CDS served as a “guinea pig” for the laptop program. What did they get in return? According to CDS, the returns comes in Microsoft’s generosity with their software, in addition to the support of their engineers, and Toshiba provided a pool of twenty loaner laptops. Their early adoption advantage puts CDS in a position to host two income-producing seminars on the laptop programs.

Another FAQ comes from the parents concerned about some of the immoral sites on the Internet being extremely harmful to their children. They want to know if CDS can block such sites from school. CDS response was to create a school-wide policy that prohibits students from accessing inappropriate material on the Internet and subjects violators to disciplinary action. Using current technical means, it is not feasible to completely control what each student does when using the Internet. The school believes that parents as well as faculty should continue to help the students make responsible choices. The Director of Technology states in Good Housekeeping, August 1999, the students are taught how to assess the information they find for bias or inaccuracy. Such lessons are particularly important given the possibility that a child may be exposed to inappropriate materials, online-hate sites, for instance, with “information” that is slanted or false, not to mention the huge
number of pornographic sites. The school does not use filters that keep kids from accessing those locations, because there are some students who would try to access such sites anyway. Teachers at other schools favor a more cautious approach and direct their students to links and site they know are safe and appropriate. The parents are expected to be involved, at home, in what their child is accessing on the Internet. They are expected to become aware of where their children are going online and with whom they are communicating. Parents do not have any hesitation in judging what their children are watching on TV, and the Web should be no different (Finigan, 1999).

The most laptop usage is conducted in the Middle School, grades 6 through 8. The Middle School, ever mindful of the developmental needs of adolescents, seeks to provide quality resources, guidance, and support for Middle School students. Individualized growth in the arts, athletics, and all academic areas is nurtured in an environment that encourages and challenges each student. Character development and social growth are an integral part of every program. The middle school faculty and administration, in partnership with students and parents, seek to fulfill the following goals: in academics, the goals are to promote a lifelong love of learning, intellectual curiosity, development of an independent personalized approach to learning and responsibility; to build character by developing responsibility, respect, integrity, compassion, courage, tolerance, and sportsmanship; curriculum goals are to address a variety of learning styles, to challenge, to engage, to promote risk-taking, emphasize problem-solving and the learning process. The self-esteem goals
are to promote confidence and to set achievable goals which are challenging and age appropriate. In the social arena the goals are to provide exposure to different ideas, to encourage a global vision, and to promote accountability, proper behavior and social decency (CCDS Middle School pamphlet, 1999).

The use of computers at CDS allows the student to be creative. This program makes a powerful computer available to all students in all classes, with full integration into the curriculum goals. The Learning with Laptops program enriches CDS traditional academic curriculum, bringing the power of modern technology to learning activities across all disciplines. Students gain competency and are confident with the tools of the modern workplace. Perhaps the most significant enhancement that the Learning with Laptops program has brought to the school is the new lines of communication that are available to all members of the school community. CDS Middle School Technology Integration explains how the laptop technology is currently being used in various programs throughout the Middle School. In the sixth grade curriculum the study of English is integrated with the study of geography, science, and math. This approach enhances the mastery of language skills while the students develop a greater appreciation of other cultures. A writing workshop environment encourages all types of writing as well as prewriting and revision. Cooperative learning increases the students motivation as they develop their oral and written communication skills (CCDS Middle School booklet, 1999).
Geography focuses on four regions of the world: Latin America, the Middle East, South Asia/Japan, and the former Soviet Union. The goal of the course is to develop a greater understanding of the earth's physical features, of world cultures, and global issues. Through cooperative teaming and group projects, the students strengthen social and communication skills while gaining knowledge of the world around them. The specific topics and units of study are integrated with English and science curricula (CCDS middle School booklet, 1999).

Mathematics serves as a natural bridge between acquiring fundamental mathematical skills and concepts in the lower school and beginning the study of algebra in the middle school. The goal is to provide a challenging but achievable program designed to prepare all of the students to continue their study of mathematics. Active participation not only motivates the students, but also increases their aptitude for and appreciation of mathematics (CCDS Middle School booklet, 1999).

Ecological and earth science skills and concepts are developed through the students active participation in the classroom lab and in the outdoors. The curriculum, which is integrated with the other subject areas, focuses on astronomy, geology, ecology, conservation and human environmental responsibilities (CCDS Middle School booklet, 1999).

Global connections is an Internet laboratory class using the areas of study found in the sixth grade. The class gives students hand-on time exploring and using
information available on the Internet. The worldwide scope of the Internet allows accessed information to support sixth grade geography, science, English, and math classes. Students practice research methods with information at their fingertips. The class provides time for student to locate and synthesize information. Students create products that include: documents, files, World Wide Web pages, graphics, video graphics, spreadsheets, presentations, sounds, and images. Students understand the underlying logic on which the Internet was created (CCDS Middle School booklet, 1999).

Students are required to select one of the foreign languages to study, either French or Spanish. The introductory course uses videos and tapes in an integrated program that emphasizes the spoken language and listening comprehension. Students use their oral skills through show and tell programs such as weather forecasts, fashion shows, and skits (CCDS Middle School booklet, 1999).

In visual art, students develop skills of creating, expressing, and responding to art and visual culture. Students are encouraged to feel that what he/she has to say is important and worth expressing. The course provides a sensitive and secure atmosphere in which interrelationships can occur and in which a nonacademic aspect of the child can be observed. Students are involved in drawing, painting, and graph paper projects (CCDS Middle School booklet, 1999).

Seventh grade curriculum consists of culture studies, mathematics, biological studies, foreign language, and health. Culture Studies, an interdisciplinary course, integrates English, history, social studies, and geography. In this double period class
student explore the cultures of traditional and modern China and Africa, the
historical and present worlds of Native Americans, as well as the teen world of the
90s. This exploration is reinforced through group and individual projects. Students
write and read extensively, reinforcing grammar skills, developing their ability to
reason clearly and abstractly, and honing their ability to write personal and analytical
essays. Active learning is one of the guiding precepts of the course (CCDS Middle
School booklet, 1999).

Mathematics require students to either continue their preparation for algebra or
begin the study of algebra. Students preparing for algebra strengthen their
computation and problem solving skills. Algebra students are introduced to
algebraic language and techniques. All students explore an introduction to statistics
and key geometric terms. All students review the pre-algebra concepts with
fractions and percents. All students strengthen their computation and problem
solving skills (CCDS Middle School booklet, 1999).

During the first semester students engage in biological studies. They study the
structure of the cell as a basis for the exploration of bacteria and viruses, fungi,
simple plants, and vascular plants. During the second semester, students investigate
the structure and functioning of the human body. The course involves extensive lab
work designed to develop skills, illustrate concepts, and provide practice with
solving problems. Students complete a project each quarter investigating such
things as the scientific method, individual organisms, and human physiology (CCDS
Middle School booklet, 1999). Students continue their study of their selected foreign language, French or Spanish, with emphasis on grammatical structures, verb tenses and composition. Students use their oral skills through interviews, TV newscasts, and plays (CCDS Middle School booklet, 1999).

The seventh grade health course covers decision making, mental health, stress management, family and social health, nutrition, exercise and fitness, human sexuality, alcohol and other drug use and abuse, and community and environmental health. This course works on the building of character through exploration of issues of respect, trustworthiness and honesty, responsibility and accountability, fairness/justice, citizenship and civil responsibility and caring (CCDS Middle School booklet, 1999).

English/U.S. history, science and foreign language, mathematics and the Inquiry Project are a major part of the eighth grade curriculum. The theme of conflict and resolution provides the framework for this study, which integrates American history and literature in projects, discussions, and other activities. Subtopics include: conflicts and resolution associated with our national identity, the growth of the country, the rights of various social/cultural groups, and the involvement of the U.S. in foreign affairs. Specific skills related to essay writing, reading comprehension, literacy analysis, oral presentation, library research, and others are integrated into the study of both English and history (CCDS Middle School booklet, 1999).

In science, students develop their investigative and analytical skills as they apply them to problem solving in the physical sciences. Topics of focus include
measurement, density, electricity, experiment design, chemistry, engineering, and space science. Students select home activities which complement the classroom program (CCDS Middle School booklet, 1999).

Students continue their foreign language studies with emphasis on grammatical structures, verb tenses and new vocabulary. Students use their oral skills through interviews, TV newscasts and oral presentations about different countries and other topics. The use of technology is implemented creating Web Pages, scanning photographs for Power Point presentations, and using the Internet just as they had done in the seventh grade (CCDS Middle School booklet, 1999).

For the electives, students choose from band, choral music, drama, photography, study hall, film making, and visual art. I will discuss only photography, film making, and visual art. The introduction to photography course is designed to acquaint the student with the mechanics of the camera and photographic process, as well as with the creative aspects of picture taking and print making. All students are assigned specific projects, such as candid portraiture, landscape, architecture, or animal portraiture, and are required to put together a photographic project of their own choosing. The middle school has its own darkroom enabling students to master the technology of photography. Film making requires the students to learn the basics of video production while making short movies. They find out why great movies are great, and how to create some of those special effects, and now learn to use the
digital camera, scanner, and video camera to make their own videos. In visual art the
major emphasis is on refining drawing skills. The course features a long-term still-
life project (CCDS Middle School, 1999).

The Middle School curriculum use team planning/teaching and interdisciplinary
study to better meet the needs of students. The academic program is organized
around the team of teachers that is associated with each grade rather than around
subject areas. Each team plans and presents the curriculum for its grade level as a
complete program and works with the students in the grade level as a group. It is
believed team planning/teaching is one of the best ways by which middle school can
be responsive to the needs of early adolescents (CCDS Middle School online, 2000).

For the above sixth through eighth grade curriculums described, technology
integration for each follows:

**Sixth grade: English:** Utilizes technology for web research, grammar and
writing workshop, CD ROMs, inspiration for pre-writing, using Microsoft Word
program for writing templates, creative writing, editing and group writing. **Science:**
Requires the use of the Word program for the processing for the various papers to
be written, and Web research on the topics of those papers. **Geography:** CD Tower
for Encarta Atlas and GeoSketch, Internet research, word processing for papers,
PowerPoint presentations (graphics creation program). **Math:** Students use Excel
for graph making, desktop calculators. **Global Connections:** (see course description
pages in Appendix C). **Health:** Produces Web page design for curriculum input, web research and web activities for enrichment. Powerpoint presentations (CCDS Middle School, 1999).

**Seventh Grade:** **Culture studies:** Employs ideas for pre-writing gained through web searches. Norton Textra Connect allow for collaboration with other students on writing. The teacher can supervise process and grade online. Culture studies includes: links to online writing handbook; CD ROMs: Religions of the World, Grammar Rock, World Beat Music, decisions simulation; PowerPoint presentations. Essay templates are created to assist in the writing process. ATT Virtual Classroom connects students to pen pals in Tokyo and Hong Kong, web page activities on African and Chinese culture, Internet research, and web pages as interactive handouts. **Science:** Encourages the students to use the Excel program for graphing bacteria, word processing for note taking and paper, form making for lab work, Internet research, Website activities, and PowerPoint presentations. **Math:** Employs Excel (Microsoft Spreadsheet) for statistics and probabilities, scientific calculators, Word problems, note taking, math essay and research for Statistics Project on the Internet. **Spanish:** Utilizes technology through note taking, e-mail assignments, Word for homework, and PowerPoint presentations. **French:** Requires PowerPoint presentations; Internet research; Web activity pages; writing paragraphs and songs, etcetera using Word; and taking notes, using scanner to enhance project materials; Net Meeting with native speakers from France and other
French speaking countries. **Health:** Technology is used for web page design for projects, Internet research for projects, web activities in class for information enhancement, PowerPoint presentations for current Health articles, and note taking and Health journal (CCDS Middle School, 1999).

**Eighth Grade:** **History:** Uses technology through: PowerPoint for Current Events, CD ROMs for Revolutionary War, Civil War and Sixties Study, Homework posted on e-mail and web page, Word processing - tests, papers, Inquiry Project, American Diary (see Appendix E). **English:** Employs word processing for tests, papers; Inquiry Project, assignments for e-mail, note taking, and editing. **Science:** Requires lab report writing, use of Internet resources, Excel for graph making to enhance the students’ Inquiry Project, and web research. **Algebra:** Employs Excel for formulas, graphing, solving Problems of the Week, math journal, PowerPoint for famous mathematicians, note taking, and Inquiry Project. **Spanish:** Utilizes technology for note taking, PowerPoint presentations for class projects, all assignments are e-mailed, Web search for research, each student creates their own web page on a country as a class project and Net meeting with native speakers from Spanish countries. **French:** Requires technology use for PowerPoint presentations, Internet research, web activity pages, writing paragraphs/songs etcetera using the Word program, note taking, using the scanner to enhance project materials, and net meeting with native speakers from French speaking countries (CCDS Middle School, 1999). **Art:** Requires the use of the PowerPoint program, various kinds and uses of art materials, research of art museums and galleries for classic paintings.
and art work by famous artists. The students develop skills of creating, expressing
and responding to art; they are encouraged to feel that what he/she has to say
is important and worth expressing. Students are involved in drawing, painting and
graph paper projects.

The Upper School academic program grades nine through twelve consists of
a traditional college preparatory curriculum. The school offers the Advanced
Placement and honors courses in English, mathematics, science, history, foreign
languages, and computer science. They apply their laptops in the acquisition of the
necessary information off the Internet Web Sites to fulfill the requirements of their
courses just as the Middle School applies theirs to fulfill course requirements.
However, art in the Upper School is a more intense study than in the Middle School.
The term fine arts refer to music: varsity choir, theory and composition and the
Upper School band. Visual arts primary goals of studio classes are to discover
visual art as a language for the communication of ideas and feelings and to develop
technical skills which make communication possible. The visual art department
courses are: foundations in art, drawing, painting, photography I, photography and
digital imaging, clay sculptures, advanced senior portfolio in 2D design, and in
photography and digital imaging.

Visual Arts (Culture/Literacy) Courses.

According to the ninth grade 2001 Course Description Booklet, the primary
goals of the CDS Upper School studio classes are to discover visual art as a
language for the communication of ideas and feelings and to develop technical skills which make communication possible. Studio activities are designed to build on individual levels of experience and achievement from beginning to the advanced, and to encourage the growth of a personal creative voice. In addition to participating in and exhibiting a studio project, students have opportunities to study the work and ideas of artists from many cultures past and present, to develop the ability to make aesthetic judgments, and to lay the groundwork for future enjoyment and appreciation of the arts.

In the CDS ninth grade course description booklet for 2000-2001 there are several courses that are art related. The following courses are:

**Foundations in art**

The foundations in art course as a general arts class providing the beginning student the opportunity to explore several media, including various drawing media, tempera paint, collage, and the three dimensional project. Students learn and use the basic vocabulary of the artist and the elements and principles of design to lay a foundation for further studies in the visual arts program (CCDS ninth grade Course Description Booklet for 2000-2001).

**Photography and digital imaging**

This course is designed to provide a comprehensive approach to analog and digital imaging with the purpose of preparing students for creating AP photography and digital imaging. The course emphasizes strong technical control in harmony with a fine art perspective, and includes photographic skills such as camera (digital)
handling, metering, film development, printing and light, and historical and contemporary context and aesthetics (CCDS ninth grade Course Description Booklet for 2000-2001)

Advanced placement senior portfolio in 2D design

This class is designed for students who want to make a serious commitment to 2D design in their Upper School experience. This course is a comprehensive and challenging measure of a student’s growth and requires a substantial amount of time beyond class periods (aesthetics (CCDS ninth grade Course Description Booklet for 2000-2001)).

Advanced placement senior portfolio in photography and digital imaging.

This class is designed for students who want to make a serious commitment to photography and digital imaging in their Upper School experience. This course is a comprehensive and challenging measure of a student’s growth and requires a substantial amount of time beyond class periods. Both of the advanced portfolio classes require a full year’s study and includes work in several specific areas in addition to a student-designed focus (CCDS ninth grade Course Description Booklet 2000-2001).

CDS has become one of the outstanding schools that converted from the traditional classroom format to the laptop classroom educational format. The faculty and student body find teaching and learning in the laptop classroom easier
for the teachers and more motivating for the students. Over the past five years, CDS has proven their success in the all technological classroom. The positive and negative regarding the impact of computer usage is detailed in the classroom are in the next chapter.
CHAPTER 3

LITERATURE REVIEW

Introduction.

The literature which influenced the formulation of this dissertation discusses the differences and similarities between teaching and learning in the traditional classroom and teaching and learning utilizing computer technology and integrated/interdisciplinary curriculum.

In 1986 technology in education, with specific emphasis on computers, was identified as a timely and important topic (Jones, 1986). With its meteoric rise, technology has become more significant in educational reform. The significance of technology in education has been questioned, debated, and negated as a viable educational reform (Smith, E., & Rush, G., & Stankiewicz, M., 1996).

On one side of the coin, Gelernter (1998), professor of Computer Science at Yale University, stated that the rush to wire schools for online learning is a disaster in the making. He sees the Internet as a stunning source of lies, propaganda, hate and filth stating only a sound education, in the traditional sense, can equip students to pluck the gold from the Internet muck.
On the other side of the coin, Fox (1998), a member of the Education Commission of the States, sees giving schoolchildren access to world-class technology as the single most important new investment to be made in public education over the next five years. Fox believes technology helps children learn faster, and better than students who receive traditional instruction. The McKinsey study, according to Fox, found that the use of computers to assist learning seemed to work even more effectively with low-achieving and remedial students. The study reported that the significance of technology lies in the academic achievement of those students who are educated in the electronic classrooms: doing lessons (e.g., math) from the screen, reading cyberbooks, visiting art museums online in lieu of the traditional classrooms taught by teachers, using textbooks, and taking field trips.

**Traditional Classroom, teacher-centered.**

Teaching and learning in the traditional classroom required students to have a 3-ring notebook, collection of pens and pencils, and maybe a protractor, compass, and ruler. These tools provide a student with a form of technology for the challenge of their school year. With these tools, the students could write, erase, measure, draw, and communicate (Healey, 1999).

The traditional classroom was teacher-centered, referred to as the "sage on the stage." The learning environment was filled with lectures about places, things in history, geography, language, and other subjects. The students were expected to sit quietly, listen, when necessary copy the teacher's notes off the blackboard, and take
tests designed by their teachers. Teachers were not required to teach to the test. High-stakes tests are rapidly becoming a rite of passage in districts around the country. To pass from third grade to the fourth grade. And so goes the testing frenzy, from elementary right on into high school. At Whitney Young High School the students complained that real learning was being shoved aside as teachers focused on boosting test scores. To pass from one grade to another, they had to take the proficiency test; if the students passed this test, then the students move into the next grade. Teachers were emphasizing a boiler plate essay format that exam scorers refer (Healey, 1999).

Teaching and learning during the radio and early television broadcasts required teachers to acquire classroom sets of materials and correlate them with the broadcasts for students to view and examine during the radio lessons. When a broadcast was to be made, the morning before the local newspaper would publish a full page of related data, including pictures for that broadcast. With the involvement of the commercial mediums, there was an increase in newspaper circulation and the number of listeners (Bolin, 1989).

Today’s students are still required to do much of the same work, but the tools are rapidly changing. Portable computers, better known as laptops, are being used in some fifth to twelfth grade classrooms around the world. Instead of carrying backpacks loaded with 3-ring binders, pens and pencils, and books, students now walk into class carrying laptop computers with access to the Internet via wireless
local area networks (LAN) and world area networks (WAN). As more schools integrate portable computers into the learning process, studies are showing that these high-tech tools are making a profound and positive impact on teaching and learning.

Early efforts in radio art education took place in 1929 with the initiation of the Ohio School of the Air, where art received an established position alongside other academic subjects presented over the airwaves (Bolin, 1989). In 1936, James A. Schwalbach developed an elementary art education program via radio for the Wisconsin School of the Air called “Let’s Draw.” Teachers were furnished with instruction manuals, including copies of the art work, to assist the teachers and their students as they listened to each broadcast. Each of the programs was a unique mix of music, sound effects, dialogue, or narration. After 1963, a portion of the series was designed to employ “Radiovision,” a technology which used specially created filmstrips that were correlated with the radio program (Kelly, 1989).

Vincent Lanier (1966) saw some unique virtues in television — immediacy (seeing events as they happen) and universality (being able to record less than important as well as significant events at low cost). He believed there might be some value to students to televise the in-process act of an artist’s creation rather than an edited version on film. Or, the simultaneous visual and verbal exchange of two art classes working in different parts of the nation, or even in different countries might supply the kind of contemporary excitement and insight so many art classes were lacking in his day, despite the best efforts of dedicated teachers (Lanier, 1966).
Gerald Lesser, Bigelow Professor of Education and Development Psychology at Harvard argued in 1968 that television had certain ingredients that made it somewhat superior to the public schools. Public schooling, he maintained, depended on control of the student by others, public humiliation, and the continuous threat of failure. Television learning contained none of these elements (Cirtin, 1996). In front of the television a child learns without fear of a public or teacher, there is no threat of humiliation, and the child can control the learning process by the flip of a switch (Spring, 1997). For the student, interactive television simulates the traditional classroom as closely as possible. For the professor, it is a different environment (Cirtin, 1996).

Just as Lanier and Lesser had predicted, teaching and learning was enhanced through television: pre-school children viewed “Sesame Street,” elementary school students watched “Mr. Rogers,” and the adults enjoyed “Cooking by Julia Child,” and home improvement with Bob Villa and Martha Stewart. For those who enjoyed painting pictures, “How to Paint” programs were televised with artists William Alexander and Walter Foster.

Generally, painting programs were televised without interruption for 30 minutes in which the artist completed a simple and uncomplicated painting. During this time frame, while the artwork was in progress, the artist explained each step from priming the canvas to laying in the picture elements, such as type of brush and stroke, kind of paint, color mixing, perspective, line, shape, and form. In this
teaching and learning situation, the viewer had the option to just watch or to watch and take notes. The popularity of these shows allowed manufacturers of art supplies to create art packages that contained the artist’s “How to Book” of the pictures they had painted on television and a set of the necessary art supplies.

In 1966, it was believed that art television programming needed to find ways of stimulating and enhancing not only the visual learning, but also other areas of perceptual learning. A variety of approaches and methods of presentation produced with imagination should be attempted, these based, of course, on sound educational objectives. Television could be used in three distinct areas by art educators: (1) For the instruction of students in art classes, (2) for the strengthening of a teacher training program in art, and (3) for the raising of general artistic literacy of the public (Schwartz, 1966).

**Genesis of Laptop Computers.** In 1996, when the Virginia Community College (VCC) began teaching their courses in electronic classrooms, the school had faculty and student concerns about the quality, efficacy, and satisfaction with electronically delivered courses (Smith & Rush, 1996).

During this time, the assumption that electronic delivery of instruction equaled the traditional classroom learning experience was being challenged, and classroom factors such as interaction, planning, and individual student differences loomed larger than ever. Teaching and learning in the electronic classroom was not a transplantation of the traditional classroom into a room equipped with interactive television capabilities. A teacher was expected to develop skills in basic operation
and light troubleshooting of the various pieces of equipment, such as the camera overhead (ELMO), the wireless microphone (CAMERAMAN) that the camera follows, television monitors, overhead projectors, electronic bulletin boards, referred to as SMART boards, and a variety of other electronic devices required to televise the lesson to remote sites (Smith & Rush, 1996). The SMART Board is a whiteboard that offers interactive capabilities that enable the user to view, annotate, and discuss documents with remote classrooms in real time. It improves the way people meet, train, present, and teach multimedia materials (Teleconference Smart Roomware, 2000).

Education via the electronic classroom was an event that every school knew would soon become based in reality. Some major concerns were posed in these questions: What is teaching and learning really like in the electronic classroom? How does a teacher adapt his or her style to the environment? Will students at remote sites receive the same quality experience as those in the classroom? Are all students' perceptual styles equally responsive to this medium? There were many things to be considered such as the medium itself, the organizational and structuring skills of the instructor, and individual student differences (Smith & Rush, 1996).

Elementary school teachers and principals currently using portable computers in their schools say laptops are the “hottest thing since books.” For instance in New York city's Mott Hall, all the students in third to twelfth grades work on their own laptops, cutting-edge machines purchased by the school district last year and leased
to students. It has been predicted that laptop computers will be on most American students' desks within five years. The Country Day School requires 500 students, beginning with the fifth grade through the 12th, to carry laptops. The school district in Beaufort, South Carolina, leased laptops to its 300 students in 1997, and after a large number of parents made demands, the school expanded the program in the fall of 1998. In Texas the State-School Board President is pushing a proposal to junk textbooks and outfit four million students with portable computers, complete with Internet access and a CD-ROM drive (Ratnesar, 1998).

By February, 1998 American schools were spending more than $5 billion on high-tech gadgets and training. Many educators think laptops rank among the most promising classroom gadgets. Laptops are compact and portable, facilitating group work and field research. Laptops can be used by students in any class at any time of day. Teachers say knowing that all their students will have computers with them at home gives them the flexibility in assigning homework; many answer student questions long after the last bell rings, via e-mail. A significant improvement, experts say, over the prevalent computer-lab model, where students spend an hour a week "learning computers" in a room full of desktop models (Ratnesar, 1998).

At New York's Mott Hall, the principal reports that since receiving their laptops last year, the sixth-graders have become much more mature and articulate. Students at the Country Day School (CDS) assisted schoolmates in fixing crashed hard
drives and finding lost files. In Little Falls, Minnesota, a working-class district that distributed 276 laptops last year, parents volunteer and provide tutoring at local schools to defray the cost of their children's machines (Ratnesca, 1998).

In the "Classrooms of Tomorrow" project researchers from 25 universities tracked student performance in a dozen computerized K-12 classes in Nashville, Tennessee, Cupertino, California, and Columbus, Ohio. Findings from this project clearly show children do better and are absent less often when computers, CD-ROMs, video cameras, and other technologies are routinely available. Further, use of technology raised scores on standardized tests by 10 to 15 percent (Cetron, 1997).

The ABC Evening News on November 26, 1997 reported on the recent effort by Texas schools to implement new technology. In Dallas, elementary and middle schools are using laptop computers to educate their children. Laptops are expected to be in use statewide by the turn of the century. Laptops are seen as a tool providing up-to-the-minute curriculum through the Internet and the school's web site. In this broadcast an elementary school principal stated one responsibility of the school is to prepare the children for the work place. In other words, the work place will hire employees skilled in the use of computers. From the third or fourth grade onward, children are doing their math on screen, reading through cyberbooks and visiting art museums via the Internet. Students even take the laptops home to do their homework (Jennings, ABC Broadcasting, 1997).
It was reported in the March 3, 2000 Columbus Dispatch the Governor of Maine is equipping his students, beginning in the seventh grade, with laptops. Starting in the year 2002, he wants each of Maine's 17,000 seventh-graders to get a laptop computer that will become theirs to keep. This governor, an independent, hopes to draw $15 million in federal and private money to supplement $50 million in state money and create an endowment that would pay for computers for every succeeding seventh grade class (Columbus Dispatch, 2000, March 3, p.14A). Providing only seventh graders with laptops indicates the governor expects the students to use these laptops throughout high school.

The primary reason for the popularity of laptops in the classroom is the computer offers a new depth in learning and the student learns more with better retention because he or she broadens their learning style. Working in groups on their projects and assignments gives students an opportunity to learn about the differences in their classmates and teaches them to be more tolerant of uniqueness. With laptop computers, the vision is to create a Connected Learning Community, a world where learning is not limited by the hours of a school day, the walls of a classroom, or the resources of a community (Microsoft, 1998).

Microsoft's Anytime Anywhere Learning (AAL) is a world in which all students and teachers have access to a personal, portable computer and online information 24 hours a day, 7 days a week, allowing them to pursue individual paths to learning. In today's world, learning does not result from access alone but from continuous, dynamic interaction among students, educators, parents, and the extended
community. Through a resource book and Web site, Microsoft provides schools with ideas, best practices, strategies, models, and case studies, as well as connections to potential solutions for hardware, financing, insurance, and training. Microsoft and Toshiba are funding a three-year independent evaluation to measure the impact that the use of full-featured laptops on a one-to-one ratio has on teaching and learning (Microsoft, 1998). This joint venture now includes AT&T, Acer, and Compaq computer manufacturers.

The objective of the schools was to equip every student with his or her own portable computer, to use it like a pencil and paper, learn anytime or anywhere, and produce the caliber of work that would be accepted in boardrooms around the world; a world where every teacher has his or her own portable computer, communicates with parents and students over e-mail, collaborates with other teachers online, and integrates technology into the curriculum anytime, anywhere; where parents, communities, and businesses become active participants in educating children and are true partners with the school. At Mott Hall School in New York, the parents are excited about this program and are becoming more involved with their children's education. They can follow their children's studies and progress through the portable computers, without having to be in the classroom. Parents are learning how to use a computer by taking lessons with their children (Microsoft, 1998). Getting parents involved in their children's education is a major problem in the traditional classroom.
The Rockman Research Company reports that laptops change a classroom's dynamics. Teachers do less lecturing (decreasing from one-third to one-fifth of class time) and more helping, spending up to twice as much class time consulting with individuals and groups. There is almost twice the amount of collaborative work as well as project-based instruction. Laptops extend the school day, by a notable two to three and a half hours of academic work, and in school students use the laptops as much in a day as other students use a computer in a week. Students employ more active learning strategies, such as taking notes during class and highlighting text when reading. They also outline, revise and rewrite more often and they give more presentations. According to the Rockman Report, writing, research and critical-thinking skills were directly improved. In problem-solving projects, laptop students applied more argument-related higher-order thinking skills in which solutions must be supported by evidence (Rockman ET AL, 1998). Rockman's 1998, second year, laptop study reports on the impact of laptops on teaching and learning. According to this report, the laptop program appears to be particularly well suited to supporting technology's promise of radically changing teaching and learning (Rockman ET AL, 1998).

The evaluation for the second year of laptop use reports that seventh graders who have participated in the laptop project for two years tended to maintain their level of academic achievement over time, while non-participants experienced a decline in standardized achievement level. Laptop users who were in the lower socio-economic strata benefited most from the project. Their average standardized
scores increased from fifth to seventh grade. By the end of the second year these students were scoring as well as their peers. A key to learning and achievement is engagement in the educational process. Participation in the laptop project was associated with fewer days absent and fewer days being tardy. Students with laptops attended school more regularly and scored better on achievement tests. The laptop (AAL) project was recommended for continuation, with a suggestion that special efforts be made to involve more students from lower socio-economical levels (Stevenson, 1998). Laptop students spend more time engaged in collaborative work than non-laptop students. Teachers see students asking each other questions and depending on their peers for information, ideas, and editing, as well as for technical help (Rockman ET AL, 1998). In the 1986-1997 literature, one of the major oppositions to computers in the classroom was computers would not allow for socialization of the students. However with the laptops, the opposite occurred, bringing together the students who otherwise would not have been accepted.

Laptop students participate in more project-based instruction. Laptops lead to more student writing and to writing of higher quality. Teachers talked about the ease of editing, improved spelling and grammar, greater number of revisions, and quicker production of drafts and final products. Laptops increase access to information and improve research and analysis skills. Teachers note that greater access to information requires students to be more thoughtful about which sources they use and why. Students have to make more decisions, especially pertaining to
research, because of the vast amount of information now available to them. Teachers maintain the laptops only increase access to information, and provide a means for compiling and organizing information in compelling ways. Students with laptops prepare and deliver more presentations. Teachers believe that laptop students' presentations are better organized, and that doing more presentations helps students feel more comfortable with presenting (Rockman ET AL, 1998).

Teachers and students take on different roles when students have laptops. Teachers become facilitators. Teachers spend more time consulting and conferencing with individuals and groups and less time lecturing. They see their role has changed from a director of learning to a facilitator of learning (Rockman ET AL, 1998). This was another concern of the early literature writers, that becoming a facilitator was a step down instead of a step up in their teaching profession. This has not occurred since teachers also use laptops in their lectures. Teachers feel the laptops allow students to express themselves more creatively and to work more independently. Many teachers comment that their classrooms are more student-centered, where students lead their own inquiries and direct their own learning and teachers assist students as needed. Students more frequently rely on active learning and study strategies when reading and writing for school. They also use computers more when brainstorming to generate ideas and collaborate with other students (Rockman ET AL, 1998).

Another concern noted in the 1986-1997 literature was that problem solving and critical thinking capabilities would be diminished through the use of computers in
the classrooms. A 1998 study reported that laptop students readily engage in problem solving and critical thinking applying higher order thinking skills. These students applied critical thinking skills when given their projects. They immediately became engaged in addressing the controversial nature of their project, gathering and evaluating evidence related to the alternative perspectives of the issue, and developing a strategy for supporting their own position on the matter in a public forum (Rockman ET AL, 1998).

Laptop students have shown greater evidence of applying higher-order-thinking skills (HOTS) to big-picture, strategic issues rather than to information gathering and procedural issues. Second only to writing skills, teachers attributed students’ critical thinking skills and problem-solving proficiency to their use of laptops. Teachers reported that critical thinking is the academic outcome or skill most directly affected by the use of laptops. They felt that laptops encouraged more problem-solving and critical thinking by students, because laptops provided students with a large number of choices that, in turn, demanded advanced decision making skills. Findings suggest that full-time access to laptop computers motivates students to apply active learning strategies and critical thinking to their schoolwork (Rockman ET AL, 1998).

Laptop art educators need to redefine art education theory and practice, as well as ready participants to experiment with new ideas and implement comprehensive art programs in their schools. All these laptop teaching and learning programs serve as a
rite of passage from traditional instructional approaches to the world of art and art education. Learning takes place not only in the classroom but in art museums, artists' studios, art centers, commercial galleries, and other authentic art world contexts to transport participants as far away as possible from their everyday settings ( Getty, 1997). With the advent of laptops in the classroom, art can be connected to other school subjects as well as to the wide range of personal interests and abilities of young learners. This technological phenomenon is fast becoming the norm for arts education in America. Elementary, middle and high school students are required to attend class as they do in a traditional school day. However, they come to class carrying their laptops. The teacher is present and teaching is presented through the use of the Internet, using a local area network (LAN). The students are able to meet and talk vis-a-vis with their teachers and classmates about any of the assignments.

Eighty-five percent of faculty surveyed felt that students' learning outcomes in online education (laptop) were better than those found in face-to-face classrooms. It was encouraging to see so many faculty (with experience in teaching the same course in face-to-face and online environments) in support of online courses. Though students use laptops in the electronic classroom, there is plenty of teacher/student face-to-face interaction. Instead of the teacher using a blackboard or a textbook in an attempt to explain the problem, the teacher and the student come together in one accord working it out on the laptop screen.
Since laptops are wireless and easily connected to the Internet, the teachers and students have little or no problem accessing the Internet or their schools’ Web site. For the student who is unable to attend class on a particular day, the normal excuses for not knowing or being prepared for the next day’s class are not acceptable, because the student can go online with their laptop and get the next day’s assignment. They can still attend school when they are “absent,” by accessing the Internet and the school’s Web site from home. Any assistance they require from the teacher can be readily obtained by e-mail. The parents are as committed to this mode of learning as are their children. When remote site teaching is required, the NetSupport School software-based remote control training tool is used for demonstrating applications, monitoring exams, and keeping an eye on unsupervised classes at remote sites.

I found when I attended the laptop workshop at the Country Day School (CDS) that it was much more rewarding than the traditional school or the distance learning classes I have taken simply because I was sharing a learning experience, doing lessons and assignments using a laptop computer, with others in the same situation. In the traditional school there is the constant reminder of “no talking.” Distance learning permits computer exchange of comments in a chat room, and “no talking” when the host teacher is lecturing. At CDS when the teacher had finished teaching the subject, we could then confer with each other, or we could ask the teacher for assistance, as we worked on the same assignments.
Many software programs have been developed with the curriculum in mind. One of these programs is called the SchoolKit. A computer using this program becomes an exciting activity center for hands-on, "minds-on" student thinking, learning, and research. There are many lessons in the kit. One of the lessons is "Simple Opinion Survey," for the fifth to tenth grade level. Students plan and conduct a survey to determine peoples' opinion about a particular subject or issue. The program contains teacher professional development models the teacher can use to develop their own training material and learn how to electronically correct students assignments. The kit offers student activities which are developed by teachers around the ideal of students being actively and mindfully engaged. The activities are based on curriculum requirements; to present a learning challenge and then provide computing and curriculum related guidance which usually launches students into a familiar environment, such as their word processors or spreadsheets, with a meaningful task at hand.

For the art class in basic drawing, there is the Dabbler program. Every type of art tool, paint, and type of paper with a sketch pad is provided. The Dabbler software contains a program of one of the television artists' lessons on how to draw. In this class student excuses of a broken pencil point, crayons left at home, out of paper and other excuses are not acceptable. With this program downloaded to the laptop, the student can fill many hours outside the classroom using this program to learn to paint, to draw, or to practice their creative ability.
The laptop student is relegated to attend class at their school, follow educational rules, and have a teacher on-hand. Under the guidance of the teacher using her laptop and the students using theirs, she helps them to become student-centered in their learning process which inculcates in them a desire to become a lifelong learner. The differences and similarities between television and radio broadcasting and distance learning and laptop users is principally the level of student who will be using either of the mediums. The television broadcasting seem more adaptable for adult education and the laptop for elementary, middle, and high school students.

As we speed toward the new millennium, one thing is absolutely certain. The technology that students have access to within a few short years will be radically different and more powerful than anything we know today. And it will challenge us all to redo our mindset or be left behind (Jukes & McCain, 1999). Here are some quotes from the past showing earlier mindset toward innovation. A Western Union internal memo of 1876 regarding the new invention called the telephone said, “this ‘telephone’ has too many shortcomings to be seriously considered as a means of communication. The device is inherently of no value.” In 1903 when Henry Ford asked the President of the Michigan Savings Bank for a loan, the President advised “the horse is here to stay but the automobile is only a novelty, a fad, a passing fancy,” so no loan was issued. The American radio pioneer, Lee DeForest had this to say about television in 1926, “while television may be theoretically feasible, commercially and financially I consider it an impossibility, a development of which we need waste little time dreaming” (Jukes & McCain, 1999).
In the year 2000 we have seen the advances in technology of the telephone, automobile, and television. Zenith’s Presentation Series receiver/monitor/color television is surprisingly easy to use for its level of versatility. Users will switch between displaying images from a computer to a television program from antenna or cable to playing a videotape on the VCR, videodisc or DVD player. Its 25 inch screen allows it to be viewed comfortably from anywhere in the classroom making it an ideal addition to any school’s audiovisual arsenal. Whether schools use laptops or this newest device for distance learning, someday these technologies will merge and become one.

The Digital Divide

An article in the Columbus Dispatch on October 14, 1998 reported on a survey of educators in Washington D.C., noting schools are facing a troubling ‘digital divide’ between higher-income students who have computers at home, and lower-income students who do not. Overall, the survey found computers in schools help students at all social, economic, and achievement levels perform better. In 1999, methods to bridge the digital divide were postulated and in some instances implemented.

According to the literature, implications of computer technology either empower students and teachers or disenfranchise them. The terms frequently used are the “have” and the “have nots.” In the early days of the Newt Gingrich reign, he suggested a credit for low-income families to buy portable computers and then,
among heckles, quickly renounced the proposal as a “dumb idea.” (Romano, 1998).

He may have backed down on his suggestion, however, the U.S. Government is now providing funds for low-income families to have computers using the government financial program, called E-rate. The school applies for the funds, proves their need, and E-rate supplies the money. That is one way to bridge the digital divide (E-rate Report, 2000).

Mott Hall, in New York City, is one of the nation’s most challenged schools. The Harlem school has the largest number of bilingual students of any school in New York state and one of the largest in the country. More than 90 percent of the students live in poverty. Teachers, parents and administrators are united in their goal to find ways to make students successful, to acquire the skills they need for professional roles, and to enable them to return to their communities as leaders. With strong parental support, the school incorporated portable computers beginning in the fifth grade. Parents and the district share the costs for the portable computers, and now they share the enthusiasm, too. The teachers report greater enthusiasm for learning, better education, and higher self-esteem. Parents report they are becoming more involved with their children’s education: they can follow their children’s studies and progress through the portable computers without having to be in the classroom. Parents also are learning how to use a laptop by taking classes with their children. The district also received permission to use U.S. Department of Education Title I funds to supplement the school’s share of the portable computer leases (Ratnesar, 1998 & Microsoft, 1998).
In 1994, the Lake Forest School District in Chicago, Illinois worked out a strategic plan to promote technology in the less wealthy rural school districts. During the planning development process, technology evolved as a major value in three out of the seven goals. The goals were (1) to provide the funding to acquire near state-of-the-art technical hardware, software, and training for 100 percent of the staff; (2) 100 percent of the student body will be utilizing tools of technology on a daily basis in the schools; (3) 100 percent of the staff will be utilizing the tools of technology on a daily basis throughout the district (VanSciver, 1994).

Considerable time was expended in defining what “technology” meant. Committee members wanted to make it clear that technology encompassed much more than computers. In goal two, care was taken to use the language, “near state-of-the-art,” as opposed to, “state-of-the-art.” There was no need, the plan acknowledges, to place the school systems’ resources under undue strain. (VanSciver, 1994).

Students often find it difficult to express their feelings and attitudes about others as well as themselves, but case studies are often used to become much more effective through interactive media’s visual dramatization. Using the interactive mode of instruction, students assume greater responsibility in the learning process. The instructor becomes more of a facilitator helping learners sort through the information given. Abstract concepts become more meaningful when learners can see realistic applications. Soon, students feel more comfortable in sharing their own
intercultural experiences and reactions, thus making the classroom a democratic microcosm of the larger society. The multimedia computer-based pedagogical framework of this project conforms to the educational needs of our technology-oriented society. It enhances interactive communication among students and instructor, as well as provides opportunities for discovery learning. Culturally different students are given a comfort zone in which to engage in cooperative learning, a road to self-discovery, acceptance of cultural pluralism, and reflective critical thinking (Spring, 1997).

Use of technology in schools is still in its infancy. A baby does not become an adult overnight because there is a maturation process which takes several years. Schools throughout the country are developing strategic plans, most are 5-year plans, on how to fund the laptop program in their schools. In the article "Digital Dunces" Gelernter, writes that the Internet by itself will not fix our schools. He reports that our schools are scared to tell students to sit down and shut up and learn, drill it, or memorize it, because you must master it whether it is fun or not. Children pay the price for our educational cowardice. He continues, that before access to the Internet is permitted, the students should first master the most basic skills, which according to him, means the students are bad at science, useless at mathematics, and hopeless at writing. He does not see that connecting to the Web will bring any improvement (Gelernter, 1998).

According to CNN news (2000), a new "digital divide" facing the schools could create a new class of underprivileged. "disadvantaged and disenfranchised."
Classrooms without broadband access is poised to fail. CCDS is expected to avail themselves of Broadband Network access as well as Webcasting. The Web-based Education Commission said in its 163-page report “Learning on the internet: From Promise to Practice” that full-scale effort is needed to bridge this new digital divide and capitalize on the full potential offered by broadband networks. As the Internet becomes the main avenue of commerce and communication, people not connected to the Internet could become a new category of the “disadvantaged and disenfranchised.” Broadband is capable of transmitting content like audio and video without delay. There is a bill before Congress which, if passed, would be known as the Broadband Internet Access Act of 2000 (CNN, 2000).

While 86 percent of those teachers surveyed said home computers help get parents involved in their children's education, only 8 percent who work in low-income schools reported the majority of their students have computers (Houston, 1998). Because this is true, many school teachers, school boards, administrators, and parents of all races, creeds, color, and at all socioeconomic levels, businesses, and even Governors working together as a community to devise ways of funding for the acquisition of portable computers for equality in education? There must be something inherently worthwhile about learning via laptops, or desktops. These tools can provide educational opportunities for the disenfranchised: educable mentally retarded (EMR); students with physical limitations: unable to speak or only able to speak; blind; para- or quadriplegia; homeless children; and those in rural
communities including Native American Indians. To be democratic, every child should be given the right to equal education regardless of their background and physical limitations (Houston, 1998).

In 1998, it was reported that forty of the fifty states had established some form of statewide competitive testing. One of the major effects of such state intervention has been to put considerable pressure on teachers to teach simply for the tests (Apple & Jungck, 1998). With the use of technology, according to the Educational Testing Service (ETS), teachers using technology in their classrooms can no longer teach to the tests. Even the ETS is concerned about how they will develop standardized tests to measure learning in the electronic classroom.

Similar to other jobs, there is the deskilling of the teachers. When individuals cease to plan and control a large portion of their own work, the skills essential to doing these tasks self-reflectively atrophy and are forgotten (Apple & Jungck, 1998). Given the centralization of authority and control, these skills are simply no longer needed. The very things that make teaching a professional activity, control of one's expertise and time, also dissipate. There is no better formula for alienation and burnout than loss of control of one's labor (Apple & Jungck, 1998). As is too often the case, educational bureaucrats borrow the ideology and techniques of industrial management, particularly the government, without recognizing what can and has happened to the majority of employees in industry itself.

The introduction of a new curriculum mandate was to make all students "computer literate." The mandate to develop computer literacy was a response to
the calls from a variety of groups for a more technically oriented curriculum that would teach the skills needed for access and mobility later in life (Apple & Jungck, 1998).

According to Apple and Jungck, in 1997, their sample school, Lakeside-Maple Glen School District, decided to make its curricula more responsive to recent and rapid social and technological change. In so doing, there was a push to create a computer literacy which was distributed to the rest of the teaching staff. The deprivation, limiting of intellectual and emotional scope of teacher's work, was recognized when an experienced teacher who was very anxious to resume her full responsibilities, expressed her feelings of alienation and unimportance when she complained that you don’t have to be a teacher to teach this unit. She went on to say that she wasn’t worried when she was absent and a substitute had to teach her seventh grade class during the unit. Her skills and her curriculum responsibilities had been usurped, and this angered her.

The Anytime Anywhere Learning (AAL) program, developed by Microsoft and Toshiba, was implemented in 26 pilot schools and the success rate was dynamic enough to encourage other schools to switch from the traditional classroom to the electronic classroom. In the pilot schools Microsoft and Toshiba training personnel were the computer literacy teachers. CDS signed up their teachers for these
classes and brought in substitute teachers to cover the teachers-in-training classes.

This caring attitude of CCDS motivated their teachers, the parents and the students to seek a higher level of computer literacy.

**Children with physical limitations and social constraints**

- **Physical limitations**

  In terms of educational software, intelligent tutors decide which problem a student will work on, correct students when they are wrong, and judge when a student is ready for a more advanced problem set (Kahn & Friedman, 1998). This is what software, such as Discover: Kenx and Kurzwell 3000, does when the students with physical limitations are unable to make those decisions themselves. These programs allow the disabled to overcome physical disabilities to a greater independence and the capability to use the enormous resources available on the web, including e-mail. The real value is in the enhanced quality of life that reaches far beyond the classroom. These applications help the disenfranchised to become a vital working part of a democracy.

  In one of my classes in 1999, I had a quadriplegic. He listened intently to the instructional portion of the class and had his eyes glued on the demonstrations. Since he was unable to move any part of his body except his right thumb which he used to propel his wheelchair, his caretaker was the one who performed the assignments, but she took her directions from him on how to prepare his assignments. Depending on how the teacher interacted with him, the students in the class interacted with him the same way. When the group project was assigned, three
of the prettiest girls in the class opted to bring him into their group. He told his caretaker he really enjoyed coming to class because he was accepted and could participate successfully. He had a tracheotomy requiring a plug be inserted to talk and removed to breathe. When he orally presented his visual project, the plug was replaced. The presentation time was 10 minutes and he spoke for 8 minutes. A young girl I met in Alaska is a severe cerebral palsied individual without any control over her body. She is in business making all kinds of greeting cards. How does she do this? She has a voice-activated device attached to her computer and she creates these cards by giving oral commands to the computer. Here are two examples of young people who once were disenfranchised but their quality of life has changed through the use of their computers and technological devices that make it possible.

Social constraints

Software often helps move educational computing in a positive direction. There are many cases where “traditional” teachers use such software while remaining largely unaware of how they constrain the software’s use. For example, fourth and fifth graders were taught graphics programming largely by rote. The teachers seldom asked or even allowed students to seek novel solutions or define their own problems, although the technology allowed for such possibilities (Kahn & Friedman, 1998). One way teachers can support such possibilities is to have students use computer technologies as tools to generate, share, and discuss the pros and cons
about ideas. Computer technology can be used to enhance communication and understanding between students who might differ on the basis of geography, culture, race, age, and economic standing (Kahn & Friedman, 1998).

If we accept that children develop understandings about political freedom and how to create societies in which such freedoms thrive, then it follows that such understandings and practice need to be made an integral part of children's education. The teacher's primary role is to guide the process. Teachers may help students become aware of and understand issues when they arise and ensure all students have an opportunity to voice their views in policy-setting meetings. Since teachers are themselves members of the self-governing community, they too may act as advocates, influencing the selection of issues for which students set policy. Teachers may also need to limit the range of acceptable agreements, particularly when majority agreements conflict with minority rights and welfare, or when community decisions conflict with legal requirements on the societal level (Kahn & Friedman, 1998).

If it is important to teach students across ages and academic fields about the social implications of computer technology. It is necessary for children with physical limitations, EMRs, homeless and rural communities to be taught so they can be able to connect with the world using the computer. Starkey reports that computer usage at the secondary and elementary school levels have broadened the already wide gulf between classrooms that "have" and those that "have not" (Starkey, 1998).
To use technology as a means and not an end in the educational process is a challenge. There is a debate that technology can exacerbate some fundamental problems with the learning process, particularly in many college settings where video lecture and instructional software can further isolate the student. While computer chat groups may provide "cyber" friends and the Internet can provide a channel of access to faraway worlds, the focus on technology can detract from day-to-day social interaction among students and between instructors and their pupils. The creation of distance learning communities is not a suitable substitute for cooperative learning within one's own classroom and community (Starkey, 1998).

Migrant children.

The migrant children who move from school to school and from one teacher to another over and over again are being given educational opportunities through the Migrant Education Consortium for Higher Achievement (MECHA) program established by Miami-Dade County Public Schools of Miami Florida which has one of the largest migrant populations in the United States. The program allows the migrant student to connect to the Internet and MECHA teachers. The idea is to give the children a sense of community and a way to connect to MECHA materials and staff. Each time a MECHA student moves to another part of the country the MECHA teacher uses the Internet to contact the receiving school and the new classroom teacher to review the student's Independent Lesson Plan (ILP) and progress. The receiving teacher can go online and access the student's ILP for the new teachers to refer to and build on.
Rural and Remote Areas.

In 1999, an online forum generated several responses to the use of Online Services For Remote and Rural Schools. The forum was initiated by the Technical Coordinator of the Toutle Lake Schools, Toutle Lake, Texas. The best response in this forum was from a teacher who lived in rural west Texas:

Imagine those who live in a frontier area (less than 7 people per square mile) as we do in far west Texas. We still get no local [sic] to Texas television or radio, we experience isolation in ways that boggle the mind. That isolation includes everyone in the population, kids, adults in work roles, elders. Laptop access’ to the World Wide Web quite literally offers access that this culture has simply never had. We not only can communicate with our neighbors, hear news, know who is running for what and why. Using computers of any kind can promise Utopia no more than any other ‘tool’, be it notes, books or a shovel. The textbook arguments are important, and discussion generates important energy. Please remember, for isolated people, that ‘laptops versus textbooks’ may beg the question. Access to information and ideas changes people. Live information and live history and live everything is participatory, and participatory education also changes people, empowers them. We out here are grateful to be able to participate in this discussion, and we can do so, essentially live, because of the ‘laptop.’ We must make such access possible for every man, woman and child in America, and in the world” (Edvancenet, 1999).

How do rural or remote areas ensure that their students receive a technology-based education, without leaving parents and other community members behind? Lets look in on Christopher, Illinois, a rural, economically depressed community of 2,800 people. Parents no longer fear that their children will be unable to compete in a technology driven society, because Christopher, with its student population of 867, is already reaping the benefits from two innovative community-based technology programs. The initiative created three-to-five-year community-based
technology plans in the state's poorest school districts. The reason the initiatives are succeeding is because the whole community became involved in the process. The first step in the technology planning process was a town meeting in which the participants were asked what is your best hope for technology and learning? Next they determined the gaps they needed to fill to achieve the vision. The final step was to write goals that focused on the plan's four components: community involvement, engaged learning, professional development, and technology deployment. The areas of engaged learning and professional development were a challenge. The town residents wanted all teachers and students to develop essential technology skills, but they also wanted those skills to be integrated into the curriculum, not just to stand alone. This meant new roles for teachers as co-learners, co-investigators, facilitators, and guides. It also meant new roles for the students as explorers, teachers, producers, and cognitive apprentices. Engaged learning and professional development were considered the heart of their community-based technology plans. Community classes offered parents the opportunity to learn and be on the same plane as their children, and served as a mechanism to bring the community together. An individual plan was developed for the high school level and another plan for the elementary school level. The Illinois school success can be attributed to community support, strong school leadership, and a 'can do' attitude (Corley, 1998).
Homeless Children

Homeless children are probably the most disenfranchised of all these groups. Major disruptions to the home environment inevitably take their toll on normal family life, including the education of children. The 1989 study by Rafferty and Rollins showed that 71 percent of homeless families with school-age children were sheltered in areas far removed from their original homes. Many had been frequently bounced between facilities. In many cases, each transfer to a different shelter required a transfer to a new school, and each transfer meant the loss of valuable school days. In addition, the noisy environment and constant flow of traffic typical of many shelters make it difficult for children to do their homework or get enough sleep (Rafferty, 1998).

When both home and school disappear simultaneously, children are especially unanchored. They must get used to new friends, new teachers, and new school work that is often discontinuous with what they were doing previously. Homeless children also confront stigmatization, insensitivity, and rejection by classmates and teachers (Rafferty, 1998).

Homeless children historically have faced many barriers accessing education, although legislation has improved the situation somewhat. Residency requirements have been the most significant barrier because homeless students are, by definition, without a residence. When parents have attempted to enroll children in the school district where they are temporarily staying, admission often has been denied because
they are not residents of the district. When a homeless child has educational needs that require special service, such as special education, bilingual programs, remedial education, and gifted programs and they transfer into new schools, they often experience difficulties accessing the services they received previously. This occurs for a variety of reasons, including lost records and the new school’s failure to comply with the law (Rafferty, 1998).

The educational rights of homeless children was established by the Stewart B. McKinney Homeless Assistance Act with amendments in 1990 and 1994. The legislation also provided formula grants for states to carry out the Education for Homeless Children and Youth Program (Subtitle VII-B). Key provisions of the law require states to ensure that local educational agencies do not create a separate education system for home children. Subtitle VII-B mandates that homelessness alone should not be sufficient reason to separate students from the mainstream school environment. States must adopt policies and practices to ensure that homeless children and youth are not isolated or stigmatized. States must ensure that every homeless child has equal access to the same free, appropriate public education provided to other children and youth. States must review and revise all policies, practices, laws, and regulations that may prevent the enrollment, attendance, and school success of homeless students. Local school districts must comply with a parent’s or guardian’s request for school selection and provide the required transportation. States must ensure that homeless students receive access to the same educational programs and services in the classroom as their permanently
housed peers, as well as the same access to preschool programs, early intervention, tutoring, counseling, before-and after-school programs, vocational programs, and state and local food programs (Rafferty, 1998).

What educators can do is facilitate continuity of schooling, minimize enrollment delays, ensure timely access to appropriate education services and in-school support services, provide family support services, empower teachers as advocates, provide staff development, encourage family involvement, and appoint a homeless liaison in each school (Rafferty, 1998).

The AAL laptop learning program cannot be implemented in a school that is divided. Strategic plans must first be developed. Such a plan requires a supporting team effort by the community: businesses, School District, school board, principal, teachers and most of all the parents. Mott Hall school, located in the poorest part of Harlem in New York City, developed a strategic plan which included how to prevent bigger children from taking the elementary students’ laptops. In the middle class Cincinnati Country Day School, their strategic plans included a method for obtaining necessary funds for those students who would need financial help.

The Columbus Dispatch reporter Riskind’s (2000) report on education, Dividing Lines, informed us that Columbus officials are trying their level best to upgrade the education system. This is not the only school system in the country having problems upgrading their educational system. The laptop learning program is slowly catching on, but many schools see there is a lot of hard work to make this technology
upgrade and opt not to rush into anything new. There are many school systems throughout the country, however, that have asked the schools who have successfully upgraded their education system for assistance in upgrading theirs (Riskind, 2000).

In the series, Dividing Lines, Riskind (2000) reported that the end of busing for racial balance, four years ago, introduced disparities among the schools. Many of the conditions in Columbus schools today are a recreation of the past. Schools are returning to the same old thing, and this time it is called re-segregation. The more experienced teachers are always pulled out into the suburban-area schools while the lesser-experienced teachers are always assigned to the inner-city schools (Riskind, 2000).

State Representative Ray Miller is unsettled by the re-segregation of schools by race, family income, and academic achievements. A poor child is as capable of learning as any other student. Equity is equity when every child passes the state proficiency test. Before the arrival of Smith (Rosa Smith), equity was described in terms of financial resources flowing to schools that needed more help. The situation depicted was not of poor schools being unable to afford what wealthier schools had, but of poor schools being first in line for the money to overcome higher hurdles to learning. According to Deborah Foley, former District Communications Director, "We are challenged with devising a plan that would unite the community. All these
elements were important to our community, the idea of choice but also the idea that there could not be ‘have’ and ‘have-not’ schools. Equity was the goal being sought” (Bush, 2000, p. A2).

High hurdles to learning are at low-performing schools, and challenges are rooted in poverty and family instability. The distractions rarely end leaving administrators and teachers little time to focus on learning. The principal at Broadleigh School stated “To help the child, you have to help the parent. And to help the parent we must help the community” (Bush, 2000, p. A4).

On the subject of equity among the schools, Rosa Smith is unconvinced that more resources alone can help poor schools improve. To Smith, money is not an end unto itself. The end, in her opinion, is to having children performing better, knowing more, thinking better, writing better, and doing better on the proficiency test. It is not necessary to have a whole new school, a brand-new school, if you do not do anything different in the classroom, it does not matter. The secret to success at top-rated schools is parents and educators setting high expectations (Bush, 2000).

Demographics alone do not explain why some schools shine and others struggle. If student enrollment remains relatively stable during the school year, district resources stretch further when fewer students are needy. National principal shortages, hits poor schools hardest while successful schools look better maintained and have ample space. High-performance buildings generally have active parents who put a premium on high-quality preschool, who read often to their children, and
by getting involved convey, the importance of learning. Parental involvement is so important it can determine a child’s success or failure. The State Superintendent of Public Instruction told lawmakers that two percent of the money spent on schools, one percent state and one percent local, should go for professional development to insure that there are caring competent, qualified teachers in every Ohio classroom (Leonard, 2000). There should be parent academies to develop materials on how to get parents to support education and how to communicate school standards. Superintendents should be community leaders, and not just educators consumed with raising money periodically.

**Laptop usage brings educational reform.**

Schools around the country are finding that “laptop learning” is changing schools for the better, with what happens in the classroom and bringing parents and communities together. The laptop is helping to build a more level playing field for all students and solutions to getting communities involved in the national education dilemmas. However, we must recognize that parental involvement varies widely and because the donated time and money benefit some schools more than others, it tends to widen inequities (Bush, 2000).

Higher expectations placed on students and parents by a hard-driving principal and a crew of enthusiastic, mostly young teachers are paying off. This turnaround came from the worst performing public elementary school in Charlotte North Carolina. Blacks showed the greatest gains, reaching 55 percent up from 39 percent in the 1996 passing rate on third grade reading. The success came because students
who failed the test were held back. With teachers so crucial to student performance, the students received plenty of attention. Underperforming teachers can be nudged out the door fairly easily because they are not represented by a union. In this state, teachers who get results can earn bonuses. The Charlotte school stretches its resources with the help of the Chamber of Commerce and hundreds of businesses. Success comes from a united front (Riskind, 2000, p. A2).

A Columbus Ohio school that has made big strides, Park Road Elementary, reflects the demographic makeup of the Columbus district. About 53 percent Park Road students are minorities and about 60 percent receive free or reduced-price lunches. Their passing rate on North Carolina tests went from 40 percent a few years ago to 69 percent in 1999. The most important ingredients for educational success in an urban school, according to the Park Road teachers, are clear cut goals and standards, coupled with effective teaching methods. Every August, administrators and teachers gather to lay out the year ahead, from teaching methods for each class to procedures for hall monitors (Riskind, 2000).

In the sixth annual State of American Education speech, the Secretary of the Department of Education, Richard Riley, informed the nation that across America there is a new realism mixed with hope, a willingness to take an honest accounting of our situation we are experiencing, and the challenges ahead; and a new resolve to overcome these challenges to give all of our children real hope for the coming times, providing a quality education to every American (Riley, 1999).
The 21st Century will be very much their century if we educate our children well. How we educate their minds and shape their values now will go a long way to defining the destiny of this nation for decades to come. “One in five of America’s children now lives in poverty and the diversity of our school age population is rapidly changing. Our increasing diversity, can be a great strength if we make change happen for everybody, all races and all cultures” (Riley, 1999, p. 3).

The Electronic Classroom, student-centered.

In the beginning, instruction via electronic classrooms was encouraged as a way to teach a “live” course to a number of students at multiple sites. However, teaching and learning in the electronic classroom is not merely a matter of replacing traditional methods with rooms equipped with interactive electronic capabilities. Many things are to be considered such as the medium itself, the organizational and structuring skills of the instructor, and individual student differences.

Webster’s New World Dictionary defines learning as to get knowledge of (a subject) or skill in (an art, trade) by study, come to know (learned what happened), to know how (learn to swim), to memorize (fix in the mind), to acquire a habit or attitude (to learn humility); to teach (p. 769). All educators define learning per Webster’s definition. The problem arising among these educators is the learning delivery systems: traditional classroom, electronic classroom, and distance learning or Online learning. Also the educators talk about the need to meet the learning style
of the students: the slow learner, high achiever, or the average student. The electronic classroom gets the highest marks for meeting the various learning styles of students which can motivate them to become lifelong learners.

Teaching in an electronic classroom requires a vastly different approach from that used in the traditional classroom. The teacher is expected to develop skills in the basic operation and minor repair of the various pieces of equipment such as the overhead camera, the wireless microphone, and television monitors. The teacher is instrumental in creating the learning environment. What happens naturally in the traditional classroom, things such as communications and interactions, do not just happen in the electronic classrooms unless the teacher deliberately plans for them ahead of time. When a teacher is required to broadcast his/her course simultaneously to other locations, the teacher must “force” interaction between and among the students at each site through collaborative learning activities (Smith, & Rush, 1996, p. 28). The constant collecting of students to make sure they are involved in the class and the program is meeting the instructor’s expectations is probably the key to teaching and learning success in the electronic classroom (Smith, & Rush, 1996).

The electronic classroom is student-centered. It allows students to interact directly with one another within the classroom and with others around the nation and with the people in their countries of study. Being able to speak directly to a student from another country students are able to see, hear, and interact with real
people getting up-to-date information that is not in their limited information textbooks. The students are motivated and their interest peaks. Their learning increases not only for the state-side students but also for the foreign students.

**Lifelong learner.**

The term lifelong education and learning adopted by UNESCO in 1976 denotes an overall scheme aimed both at restructuring the existing education system and developing its potential in such a way that men and women are agents of their own education. (Charp, 1999). Lifelong learning occurs best via the Internet because each day brings current changes taking place round the world.

A deterrent to lifelong learning are the textbooks used in the traditional classroom. These books contained limited information and are seldom updated. Schools complained about how much textbooks cost, when trying to keep them current and their budgets did not cover frequent book purchases. The use of laptops motivates the students to become lifelong learners. They can research the past, the present, and the most current events around the world. A side note, seldom mentioned, is that the teachers become just as motivated as the students. Laptops allow the teachers to also keep up with current events around the world. Being current helps them to teach better, develops more interest in their subject, and encourages them to become lifelong learners (Microsoft, 1998).

Whatever can be launched from a desktop computer can also be launched from a laptop computer. Since each child cannot have their own desktop at school but must share allotted time with others, having a personal laptop in their possession
gives each student greater latitude to develop into a lifelong learner. The need for broad and varied learning opportunities to cope with social, economic, and technological changes is increasing. Mission statements from a number of educational institutions, K-12, and post-secondary schools note as some of their goals that students must be prepared with skills for lifelong learning, to become critical of what they learn and why they learn throughout their lives, and to assist people to learn at anytime in their lives, anywhere, freely choosing from a variety of learning opportunities (Charp, 1999).

When a student’s prior knowledge becomes inert, it is rendered essentially useless. Didactic teaching methods, compartmentalized curricula, and rote-learning strategies encourage the acquisition of inert knowledge, which stifles the development of learning in a discipline. There is a need to re-examine the expectation about student learning. While some educators believe students can be best served by knowing a little about a lot of things as long as they also possess critical thinking skills, research on learning does not support this argument. What seems certain is that the acquisition of expertise is discipline specific. For example, an expert in nuclear physics will function as a relative novice in understanding the historical significance of contributions by Georgia O’Keeffe to the visual arts. A plausible educational belief is that students should not be taught isolated facts; rather they should be taught central concepts that render facts meaningful (Koroscik, 1994).
If the goal is that students should meaningfully connect information with and between disciplines, educators need to question the tradition of organizing curricula in any way that inhibits interdisciplinary and cross-disciplinary inquiry. The only way to address this problem is to build curriculum standards that support interdisciplinary collaboration (Koroscik, 1994). Though this statement was made in 1994, students, through the use of laptop computers today, are engaged in integrated interdisciplinary inquiry. They go online and download various types of information from designated Web sites. Teachers from the various disciplines, such as history, art, English, geography, and science are working as a team to develop an Inquiry Project for their students. The projects are designed to last throughout the school year.

Reform and tomorrow’s schools.

In an article titled, “Reform and Tomorrow’s schools,” Cetron (1997) states technology and some common sense measures are necessary to reform American schools and to prepare students for the 21st century. The technological revolution can be used to reframe the very nature of the educational experience, for the barriers we often faced in the past are no longer barriers, and students no longer have to be bound by time and place to learn. The tremendous potential of technology will only be realized if we can create a new vision of how technology will change the way we define teaching and how we believe learning can take place (Harris & Sullivan, 2000).
Within five years, most schools will be linked to a network of fiber-optic cables. Connections to data-based sources will be faster and cheaper. A year or two later, wireless communication links will bring high-speed service to those schools far from major population centers. As a result, tomorrow’s pupils will be better prepared for life in the new technology-dependent century than students today (Cetron, 1997). The Fiscal Year (FY) 1999 new Educational Initiatives set forth by the U. S. Department of Education include the awarding of $75 million for grants to prepare tomorrow’s teachers to use and integrate technology effectively into the curriculum as well as use new ways of teaching and learning enhanced by technology. To guarantee teachers are proficient in the technologies of the 21st century, teacher preparation programs must ensure that their students master the instructional strategies, learning styles, and content applications enabled by these new learning tools (Riley, ED Initiatives, 1999; Carroll, 1999). Among the new learning tools available, Educast Custom Channel and ClassWorks Gold have been developed by Knowledge Adventure, Inc. and are in use currently in Texas electronic classrooms. No matter how enthused the educators are about the use of technology in the classroom, technology alone is useless and teacher-instructed classes alone leave a lot of learning to be desired. It is agreed that bringing technology into the classroom and keeping the teaching intact creates the most prosperous learning environment. They say this is what counts when students take the proficiency tests and enter the labor markets.
E-books.

There has been concern in the teaching community that laptops will replace textbooks. One response to that concern was textbooks would be replaced by E-books on the Internet. The E-books would have what the physical textbooks contained but the E-books could be kept current. For example, the Berlin Wall came down, but many textbooks still have the Wall up. With the E-book, the information would be kept current. Funds used to buy more books can be redistributed to use in technology efforts. Textbooks already come with their limitations but E-Books would allow students to research the past as well as the most current events.

Testing, evaluation and assessment in laptop classrooms

The Educational Testing Service (ETS).

The Educational Testing Service (ETS) report on “Computers and Classrooms” reveals their concern about the status of technology in U.S. schools and how learning in that environment will require a revamp, rewrite or adjustment to the current standard test measurements to accommodate the soaring scores evidenced through technology in the classrooms. ETS realizes that standard testing measures are becoming obsolete due to students being educated in a technological environment. ETS is busy looking at the computers, desktop and laptops, with laptops beginning to replace desktops, and the types of technological peripherals that are being used in the classrooms. Since the computer classroom has not been in existence more than five years, they are investigating the outcomes of students being
educated in these classrooms and the teachers who are using technology, computers, Internet, and World Wide Web to teach local students and remote classrooms at the same time. Computers alone will not raise the achievement scores, but technological peripherals and teachers trained in their use bring about a new level of learning to students who have been raised on electronic gadgetry.

**Rubric, assessment tool**

Group assignments, multimedia projects, and rapidly changing standards all make it difficult to measure student achievement in today's technology-rich classroom. McCullin (1998) has designed an assessment tool, called a rubric, to assist teachers in evaluating their students' projects.

The primary evaluation and assessment tool used in the laptop classroom is the Rubric. A rubric is a scoring tool that lists the criteria of evaluation for a piece of work. For example: Purpose, organization, details, voice, and mechanics are often criteria for a piece of writing, it also articulates gradations of quality for each criterion, from excellent to poor. Criteria appearing on the rubric for the project must explain: (1) the preliminary work of the project, (2) the design of the project, (3) content, and (4) presentation style and effectiveness, the mechanics of the written piece, and the quality of the project itself. Rubrics are a powerful tool for both teaching and assessment. Rubrics can improve student performance as well as monitor it by making teachers' expectations clear and by showing students how to meet these expectations. The uses of rubrics help define "quality." For a rubric
sample and to learn more about this teaching and assessment tool, visit website
www.ncsu.ed/midlink/rub.senst/ (see Appendix B).

A teacher begins with the standard curriculum and determines which objectives
in the curriculum standards are to be targeted. If technology fits, they carefully
select the content. One of the strengths of rubrics is they offer a way for every
student to succeed at some level. Even students working below grade level tend to
look at a rubric and say I can do this part of it. Rubrics provide a way to make
subject activities, group work, research, processes, and presentations into something
that can be evaluated objectively. They are particularly effective for evaluating
projects completed over several days or weeks. When students feel accountable,
their behavior often improves and they take the assignment more seriously. The
teacher is expected to share their rubric or assessment tool with the students before
they begin their tasks. Providing them for the evaluation process amounts to
providing a road map to guide the students along their way (McCullin, 1998).

Forecasting International (FI).

Forecasting International (FI) founder and president M. Cetron, conducted a
major survey on educational reform for the American Association of School
Administrators in The survey revealed the astonishing power of computerized
teaching. Computers were seen as the ideal teachers, they were never too harried to
answer a question, and students never had to wait their turn to receive instructional
attention. The computers always proceed at each child's own pace, presenting
information in a variety of ways until students show that they understand the
information in a variety of ways until students show that they understand the material (much like the different levels of accomplishment in computer games). The best computerized tutors can capture and hold a child's attention for hours. It is evident that future teachers will be facilitators, monitors, and catalysts, rather than lecturers and task masters (Cetron, 1997).

The Columbus Dispatch (May 1, 1999) informed the public that the Massachusetts Institute of Technology (MIT) is developing the ultimate PC, called Oxygen. It has voice-recognition software that makes the keyboard and mouse obsolete and allows the user to issue complex orders by voice command and carry on a conversation. The advanced voice-recognition software will be most advantageous for the severely disabled who have only speech capability. This allows the disabled student to perform well in an interdisciplinary curriculum classroom environment which can open job opportunities for many in the workforce.

Newest technology to be added to CDS for professional development

CDS professional development plans are to bring to their school new technology such as video conferencing, video conferencing for learning with laptops, videostreaming (Broadband), webcasting, digital publishing, and tutorials on the CDS server and online.

Video conferencing

A powerful tool for collaboration is desktop video conferencing. Many exciting developments in Internet-based technologies provide educators with opportunities
to expand their repertoire of tools for collaboration. One example is the advent of
two-way video conferencing that promises to have a major impact on education by
exploring the application of desktop video conferencing in the classroom. Static
Internet pages, e-mail and threaded discussions have paved the way for
asynchronous collaboration between educators and students. Online chats have
been an important tool for synchronous collaboration, but these forms of
communication are about to be supplanted by the mediums of audio and video.
Electronic collaboration is important to consider because it can be done at anytime
from anywhere (akin to the cellular phone operation). It allows for a sustained
effort where participants can propose, try out, refine, and shape ideas themselves.

There are three basic types of collaboration with two-way desktop video
conferencing, one-to-one, one-to-group, and group-to-group.

**Videoconferencing for learning with laptops**

Videoconferencing technology, new to most teachers, librarians, and students,
allows people at two or more locations to see and hear each other. The
Videoconferencing for Learning Website supports effective use of
videoconferencing technology by providing basic information about such technology
and instructional applications, and resources to help the site link and electronically
collaborate with other videoconferencing teachers, librarians, and content providers.

Electronic collaboration can enhance discussion groups, data collection and
organization, sharing documents, synchronous communications, online courses,
integrated distance learning tools. It is important to know that one of the future
CDS goals is to explore how desktop video conferencing fits into the current landscape of electronic collaboration and not necessarily how it could supplant electronic collaboration as we know it. For example, in a one-to-one videoconference, innovative teachers can revise and update the district technology plan, share teaching and lesson plans, and engage in relevant discussions related to the teaching and learning process. In a one-to-group video conference, resource sharing has unlimited potential. The classroom teachers from different high schools can teach a multimedia applications class and divide software applications to double the teaching power. Each teacher specializes in their subject area and then teaches both classes while another teacher serves as an assistant. The authoring software and design software, such as Photoshop, requires a teacher to spend many hours in training and to find time to develop the application materials. By dividing up the responsibility, each teacher can thoroughly learn the software applications, and thus do a better job of teaching students. In group-to-group video conferencing, teachers from an elementary school contacted and worked with students from a high school teacher's Multimedia Application class to help with the design of presentations for use in classroom instruction (Zsiray, 2001).
The early results of the videoconferencing project reflect the creativity of individuals involved in the application of the desktop two-way video communications technology in the classroom. CDS is working toward installing their own video conferencing program next year, but instead of using desktop computers, they will be implementing video conferencing using their laptops.

**Videostreaming (Broadband)**

Streaming media is a method of making audio, video and other multimedia available in real time, with no download delay, over the Internet or corporate Intranets. Streaming media consists of specially encoded video hosted on a streaming media server being viewed by a web audience through a streaming media player. Broadband refers to Internet connections that are faster than the common 56 kilobytes per second (kbps) consumer modem connections. Many workplaces and schools have broadband network access to the Internet. Faster connections significantly improve the quality of listening to audio and watching video over the Internet. Any video signal can be multi-cast to each computer. CDS can bring in a live Cable or TV show signal, save it to the server, and have each student watch it on their laptop computer (perhaps an assignment to watch NOVA) when they have time.

**Webcasting**

Webcasting on the Internet is similar to a radio station broadcasting over the airwaves with one main difference. Instead of a TV or radio station broadcasting your message (program, advertisement, music, video, etc.) for a limited time (30
seconds to two hours), you can have the information available for global listening by an interested party 24 hours a day, seven days a week. Webcasting is like broadcasting through your computer. Special software is needed on the school's server. Anyone at the school, preferably the students, can connect to a teachers' site and see them presenting something live.

Digital publishing

The trusty textbook is no longer a static ream of paper. Textbooks are now available on the Internet as E-books. The E-books are now available to print-on-demand and this allows teachers to custom print any portion of a textbook, an article or a chapter they need their students to read. This saves paper and prevents back problems faced by textbook-laden students. It provides students with an interactive learning experience, while giving teachers the tools to add their own notes to an assigned reading.

Tutorials on the school’s server and online

There are online tutorials for every type of training needed, such as a tutorial on upgraded Microsoft Office applications used by the headmasters of the Middle and Upper Schools. The headmasters will say to their teachers, "We want everyone to be at an intermediate level on the Office programs (Word, Excel, PowerPoint). Please go on the network and use the tutorials." The tutorials keep track of each person's progress. The curriculum Compass tutorial shows the teachers how to use this tool for simpler and easier development of an integrated/interdisciplinary
curriculum. The recent online learning tutorial for teachers is the Community of Learning, Information, Communication, and Knowledge (CLICK). This program assists teachers in implementing technology into their curriculum. What knowledge base needs to be updated, there is an online tutorial available.

Distance Learning.

The Electronic Classroom has different names including On-line Learning, Learning Circles, and Distance Learning." Distance Learning is more acceptable than either of the other two terms. Most everyone is familiar with the term distance learning because correspondence schools have used it for years. It is a familiar term, its performance is trusted, and it utilizes the U.S. mail system. In contrast, On-line Learning is very new and its performance has not been subjected to the test of time.

The term Learning Circle is drawn from two contexts, one from school and one from the business community (TEAM Distance Learning, 1998-1999). Each student has a computer and screen and whenever instructional material or messages are sent to the Learning Circle, they appear on the students screens. Learning Circles promote theme-based project work integrated with the classroom curriculum. Working with Learning Circle partners from around the world help students develop important interpersonal skills. It gives them an opportunity to learn about the culture, language and arts of the international students with whom they interact.
TEAMS.

The TEAMS Electronic Classroom brings exemplary learning opportunities to students, teachers, and parents through nationally televised satellite broadcasts and the Internet. Students use instructional technologies to access a combination of the best features of time-dependent (i.e., synchronous) video-based instruction along with time-independent (i.e., asynchronous) computer access multimedia and the Internet. TEAMS is a component of the Telecommunications and Technology division of the Los Angeles County Office of Education (LACOE) and is funded in part through the U.S. Department of Education's Office of Educational Research and Improvement (O.E.R.I.). TEAMS offers links to sites featuring the appropriate use of the Internet to help educators in developing policies for student access (TEAMS Distance Learning, 1998-1999).

TEAMS was the first program I found to offer Arts on-line. Some of the art topics are:

- African Arts: an electronic exhibition at Bayly Art Museum at the University of Virginia;
- Art for Kids: a variety of links to art and music for children, from on-line coloring pages to art history;
- Art Serve, The ANU Mosaic for the Humanities: a variety of image collections and small presentations which deals in some way with Art History;
- ArtScape: features ceramics, computer art, mixed media, painting, photography, printmaking and sculpture;
- Art Stuff: a variety of links to museums, artists, clip art, art styles/periods art games/lessons and architecture;
Text-based (traditional) versus project-based (constructivist/laptop) style instruction

CDS was a traditional school for seventy years. In 1996, they became one of the Microsoft-Toshiba Anytime, Anywhere, Learning (AAL) pilot schools using the laptop computers. Since 1996, there have been many more schools opting for the laptop classrooms. The University of California and Minnesota, in 1998, did an indepth survey of those teachers who had taught for many years in the traditional format and found themselves learning to teach in the laptop classroom. Terms were developed to distinguish between the former teaching practices and the present. A new method or style of teaching also had to be established with different types of assessment tools.

The Ravitz, Becker, and Wong (2000) report on Constructivist-Compatible Beliefs and Practices Among U.S. teachers, delineated pedagogy differences between teaching in the traditional classroom and teaching in the computer classroom. Traditional classroom teaching is labeled by them as transmission-based
instruction and skills-practice, while computer classroom teaching is labeled as constructivist-compatible learning. The Country Day School (CDS), when necessary, uses a combination of both learning approaches.

According to Ravitz, Becker, and Wong (2000):

Traditional Transmission Instruction is based on a theory of learning that suggests that students will learn facts, concepts, and understanding by absorbing the content of their teacher’s explanations or by reading explanations from a text and answering related questions.

Constructivist-Compatible Instruction is based on a theory of learning that suggests that understanding arises only through prolonged engagement of the learner in relating new ideas and explanations to the learner’s own prior beliefs. A corollary of that assertion is that the capacity to employ procedural knowledge (skills) comes only from experience in working with concrete problems that provide experience in deciding how and when to call upon each of a diverse set of skills.

The basic difference between traditional transmission-vs.-constructivist is in terms of the theory of student learning that undergirds instructional practice — i.e., the difference of learning through reception of facts and repetitive of discrete skills versus learning through effortful integration of new ideas with those previously believed. The constructivism assigns to systematically create social structure for learning debates between students, cooperative group project projects, and other activities involving the articulation of students’ own ideas in concrete contexts are valued by constructivists for their power to further individual understanding. A constructivist teaching approach attempts to make learning a more self-directed, personally-responsive, and socially-mediated process in which a learner’s own motivation and effort are just as important, if not more central, to a student’s education than the content of facts learned.

This involves creating a learning environment so that students may identify their own issues and problems to be solved rather than having questions defined for them, decide how to explore an issue or solve a problem rather than having these procedures defined by the teacher, reflect further and make sense of what they have experienced, and interact with peers by presenting their solutions, describing how solutions were reached, and receiving feedback.
In a classroom where these principles guide a majority of moment-to-moment teaching decisions this would be considered a “constructivist learning environment.” A constructivist learning environment tends to involve activities of the following five types:

- **Projects** in which students employ a variety of skills and engage in a diverse set of tasks to accomplish a goal that, even if only implicitly, involves developing their understanding of important content.

- **Group work** where student tasks involve interdependencies with other students and, in particular, where discourse with other students is facilitated.

- **Problem-solving tasks** where the procedural knowledge present for solving a problem requires thinking, evaluation, decision-making, and planning as well; and where the definition of the problems themselves may be the responsibility of the student.

- **Reflective thought through writing.** Exposition of a reasoned argument in written form is perhaps the most powerful and most general medium for engaging people with ideas and with their development of understanding.

- **A variety of other tasks,** in addition to reflective writing, that engages students in meaningful thinking — engaging them in a way that they consider both new information and their own prior understandings and beliefs, and attempt to work out syntheses of both the old and the new. Those tasks include, for example, having students make conjecture, eliciting their opinions, having them explicitly work on issues related to their own experiences, and arguing for various points of view. (pp. 1-2)

My study documents teachers' responses to changes in their teaching practices for the electronic classroom; those practices that involve the five types of activities using the laptop computer; and the frequency with which their practice involves some of the traditional teaching and skill-development activities. It also documents
required types of student laptop use and outcomes and examines applications of
technology for teaching and learning at CDS which has utilized laptops in the
classroom for five years.

Integrated/interdisciplinary curriculum and curriculum mapping

Engaging students in real-world problem solving as they acquire the skills and
knowledge needed for success in work and life is important to middle and upper
school students. Helping students see the connections between school and life can
be accomplished by an integrated/interdisciplinary curriculum rooted in real-world
topics. Learning can be further enhanced by a performance that allows students to
practice and be assessed on important work and life skills. This approach represents
a blending of curricular and instructional practices (Kushman, 1997).

The interdisciplinary curriculum concept has been around for a long time, but
schools were having problems with the interconnections between disciplines. The
school systems recognized that students learn more, remember more, and are able to
apply their knowledge when teaching and learning is interdisciplinary. However,
Attempts by many school districts to organize interdisciplinary curriculum have been
discouraging and generally unsuccessful. Lack of success was attributed to teachers
being required to resent material outside of their expertise. Teachers in such “core”
or interdisciplinary classes felt threatened because they were asked to teach material
with which they were either not familiar or completely comfortable. The content of
teachers own areas of specialty in integrated courses was often perceived as
secondary, undervalued, and necessarily truncated because of the pressures of
time-sharing (Palmer, 1991). This is particularly true with teachers of the arts since their disciplines are often the first to be cut or truncated when a school district budget is cut. Getting people to think critically about their own and their group’s actions and who they are empowering or disenfranchising through their personal lives, actions, and work, which includes making and interpreting the meaning of art and visual culture, is important (Ballengee-Morris & Stuhr, 2001).

**Distinction between terms integrated and interdisciplinary**

Jacobs (1989) made a distinction between integrated and interdisciplinary curriculum.

Integrated curriculum revolves around a main theme and may consist of simply a combination of 2 to 3 subject disciplines. Combining curriculum areas in English and social studies or mathematics and science which have common threads in the already established school curriculum are demonstrative of integrated curriculum units. (p. 8)

Interdisciplinary curriculum also revolves around themes, but the themes are more conceptually based; it consists of numerous (possibly 3 to 7) subject disciplines connected to a thematic concept. The advantages of this curriculum are:

1) It permits students to see the interrelationship of subject disciplines and the interdependency between subject areas and enhances the retention of student knowledge of content.

2) It promotes collegiality among teachers as they must plan together to produce viable products.

3) With the increased focus on teachers working as teams in planning curriculum implementation, changes from traditional to innovative instructional strategies fosters understanding versus rote learning (Johnson, 2000).
In 1997, Jacobs developed a process called “mapping the curriculum” which assists any group in gathering information across and between disciplines and charting the IDC relationships that are appropriate for the basis of an IDC.

Interdisciplinary study has long been seen as an important feature of liberal arts education. Yet the creation of truly interdisciplinary experiences among faculty and students in different academic departments has often presented administrative and philosophical challenges. Not only are such projects difficult to coordinate, they also raise issues when the goals or working methods of different disciplines conflict. However, the inventive application of computer resources (together with a healthy spirit of adventure from faculty and students alike) can effectively address some of these problems, and help both faculty and students to think more creatively about the relationships among traditional academic disciplines (Quick, 2000).

Online discussion encouraged interdisciplinary conversations as students and professors exchanged ideas about course reading and shared examples of effective online resources. Students quickly found their own reactions to such material could be enriched and supplemented by those in other disciplines. Computer resources, such as online discussions, multimedia and hypertext, could help solve the administrative challenges of interdepartmental projects while creating collaborative, interdisciplinary learning experiences. Students began to see how their own perspectives might shift when they were engaged in an interdisciplinary project. In the John Heartland project at Towson University in Towson, Maryland, a team was assigned to his artwork and structured their subject as a series of exhibits within an
The design of the site provided each team with enough freedom to explore individual ways of presenting a particular subject area, but enough structure to ensure a coherent final project (Quick, 2000).

Integrated curriculum is defined as a holistic approach to learning that stresses connections and relationships rather than delineations within and across the academic disciplines and between academic and vocational programs. Integrated curriculum is concept driven and focuses on performance expectations that describe the generic knowledge, skills, and habit of mind that students are expected to attain. It may be organized around themes/topics, essential questions, metacognitive skills, or real-life issues (Burns, 1995).

The advent of the laptop computer classroom gave rise to the successful development and implementation of the interdisciplinary curriculum and computer software to make it easier for the teachers and the curriculum writers to graph their progress, find gaps in their connections, and locate repetitious connections. Issues still exist about how what is to be taught per discipline and how the interconnections are made for a smooth transition from one discipline to another. Though in the laptop classroom, the students and teachers have access to the Internet and are able to connect to other schools, universities, museums and galleries around the world, the field trip still holds a fascination for the students and the teachers.
Integrated curriculum is a tool for building bridges that focus on performance expectations and describe the generic knowledge, skills, and habit of mind that students are expected to attain. Research in the 80's and 90's has indicated that the brain searches for patterns and interconnections to construct meaning. So, if humans learn better through connection making, it makes sense to teach through connections, not fragments of knowledge (Burns, 1995).

According to Burns (1995) planning for curriculum integration in middle and upper Schools provides five evolving stages of curriculum integration. They are: parallel disciplines, multidisciplinary, interdisciplinary, integrated, and transdisciplinary. The five stages are applied to these five variable components, curriculum, instructions, assessments, classroom culture, and technology (see Appendix F).

**Visual tools for constructing integrated/interdisciplinary curriculum mapping**

To assist teachers in successfully creating an interdisciplinary curriculum, the teachers map their connections to the other disciplines. Curriculum mapping can be accomplished manually, but is labor intensive and time consuming. The use of mapping software provides schools and districts with a tool for aligning standards with curriculum, instruction and assessment. It provides a searchable database that organizes and analyzes information about curriculum and assessment including maps, assessment designs, unit designs, and lessons. The mapping software is a tool that makes curriculum mapping quick and efficient. It is used to make curriculum
revision dynamic and ongoing. The software is designed to value the creativity of
teachers and provide them with tools to create content, skills, assessments, lessons,
units, and essential questions. Successful teacher innovations are key to making
curriculum evolve and improve.

There is a sequence for creating and working with curriculum maps which is
based on the school calendar. Jacobs (1997) lists seven distinct phases to successful
interdisciplinary curriculum development. Those phases are:

**Phase one** begins with each teacher describing three major elements that
comprise the curriculum on the curriculum map. The elements are emphasis
on processes and skills, content in terms of essential concepts and topics, or
the content as examined in essential questions, and the products and
performances that are the assessments of learning. The purpose of phase one
is for each teacher to place realistic data about what he or she teaches during
the course of the academic year on a macro level. It is critical that each
teacher completes a calendar-based map. To prevent potpourri or polarity
problems, effective interdisciplinary programs must meet two criteria:
1) They must have carefully conceived design features: a scope and sequence,
a cognitive taxonomy (Bloom’s) to encourage thinking skills, behavioral
indicator of attitudinal change, and a solid evaluations scheme. 2) They must
use both discipline-field-based and interdisciplinary experiences for students in
the curriculum.

**Phase two** begins the first read-through. After completion of the maps,
each teacher becomes an editor for the map of the entire curriculum. This
requires each faculty member to become familiar with his or her colleagues’
curriculum as well as the scope of all the maps. Each teacher-as-editor reads
through the maps to gain information.

**Phase three** is the mixed group review session. The optimum size
of each group should be six to eight staff members. In the mixed group
review, each teacher shares his or her findings from their individual review of
the maps. The teachers simply state the areas in which they gained information
and the places where they located gaps, repetitions, potential areas for
integration, mismatches between outcomes and curriculum, and meaningful
and non-meaningful assessments. They are to red-flag areas that need
attention, but not rewrite the curriculum. In this phase if the school has the
Curriculum Mapping software, the teachers can use it to locate gaps, repetitions, potential areas of integration and mismatches between outcomes and curriculum in less time than doing this by hand.

Phase four is the large group review which requires all members of the faculty to be present. It is in this phase that the faculty moves from a review mode to an editing, revising, and developing mode.

Phase five is where the participants determine those points that can be revised immediately. With lists of observations in hand, the faculty starts to sift through the data and determine areas that can be handled by faculty members, teams, and administrators. Dissension about what to teach, what to drop or what to add occurs most frequently in phase five.

Phase six requires that determinations are made on those points which will require long-term research and development. While reviewing the maps, groups will find areas that require more in-depth investigation before a solution can be produced. This is obvious because the problem encompasses a range of grade levels or departments, the implications likely will include structural decision, or the results of altering the curriculum will have long-term consequences. The long-term consequences are tremendous, and planning should not be superficial.

Phase seven is just a continuation of the review cycle. Curriculum review should be active and ongoing and it should become a living document. With these phases which increase genuine communication, refinement of curriculum is a real possibility (Jacobs, 1997).

Curriculum mapping

Each individual teacher creates a map. These maps are shared among teachers over grades and schools, allowing individual expertise to be adopted and adapted among all teachers. Teachers share and identify gaps and repetitions in the curriculum. Sharing enhances analysis and understanding about the process of teaching as described in the maps. Teachers reflect upon what they learn from sharing, make adjustments, and select quality innovations. The curriculum mapping consist of seven phases, applied in sequence and based on the school calendar.
Phase 1 begins with each teacher describing three major elements that comprise the curriculum on the curriculum map. Those major elements are processes and skills, content in terms of essential concepts and topics, and the products and performances that are the assessments of learning. Phase 2 is the first read-through after the maps have been completed. Each teacher becomes an editor for the map of the entire curriculum. Phase 3 is the mixed group review session comprised of six to eight teachers. Phase 4 is the large group review which requires all members of the faculty to be present. Phase 5 is where the participants determine those points that can be revised immediately. Phase 6 determinations are made on those points that will require long term research and development, and Phase 7 is a continuation of the review cycle. Curriculum review should be active and on going, it should become a living document. For an overview and tutorial of one of these programs visit www.techpaths.com/.

**Concept mapping**

Concept maps graphically illustrate relationships between ideas. In a concept map, two or more concepts are linked by words that describe their relationship. Concept maps organize, enhance, and encourage understanding. The maps help students to incorporate visual learning into the classroom and to learn new information having them integrate each new idea into their existing body of knowledge. These maps are ideal for teachers to measure the growth of student learning. As students create concept maps, they reiterate ideas using their own
words. Misdirected links or wrong connections alert educators to what students do not understand. IDC teachers develop concept maps on what (s)he wants to teach in the classroom. It is through the linking of information from these concept maps that the interdisciplinary curriculum mapping process occurs. For an overview and tutorial of concept mapping, visit the website www.inspiration.com.

Summary

The literature review in this chapter reports on the pitfalls, benefits, disadvantages, and advantages of moving from the traditional classroom educational format to an all electronic one. The methodology used in conducting this case study to research the success or failure of laptop usage in the classroom, is described in the next chapter.
CHAPTER 4

METHODOLOGY

Design of the study

Case study methodology was used to investigate the teaching and learning experiences of the teachers at a Country Day School (CDS). Case study research can be defined as “empirical inquiry that investigates a contemporary phenomenon within its real-life context, when the boundaries between phenomenon and context are not clearly evident, and in which multiple sources of evidence are used” (Yin, 1994, p. 13).

Case study research is that it may successfully be used to study a variety of situations such as “a program, an event, a person, a process, an institution, or a social group” (Merriam, 1991, p. 9).

Location of Research

A Country Day School (CDS) located in a large Midwestern Metropolitan city was selected for the study. This Country Day School was particularly noteworthy due to its participation in Microsoft’s “Anytime, Anywhere, Learning” (AAL) pilot program.
Country Day School (CDS) has been in existence since 1926. The school followed a traditional curriculum until five years ago when school Administrators chose to drop traditional training methods and replace them with electronic teaching devices. Today, students and teachers use laptop technology in all subject areas.

During the change from traditional to electronic teaching, students and teachers were required to learn how to use laptop technology and related peripherals. Because teachers having experience in both traditional and electronic (laptop) teaching methods, this school was ideal school for case study research on laptop technology.

Participants

Participants were pre-selected by the Middle School principal. Teacher/staff participants consisted of 12 teachers from the seventh, eighth, and ninth grades. One librarian also participated.

Participants were:

- An eighth grade male English teacher was male, approximately 30 years old. He also teaches art history and is a newer teacher at the school.

- A ninth grade female history teacher in her early thirties, also a newer teacher in the school.

- A ninth grade female history teacher in her early thirties, she also a newer teacher at CDS.

- A ninth grade female art teacher in her forties, and a veteran teacher at the school. She was head of the art department in the Upper School. Teaching "art basics" (e.g., painting, drawing).
• A female visual arts teacher (e.g., photography, digital imagery, and multimedia).

• An eighth grade male American history teacher in his late forties who was a veteran teacher at the school.

• A seventh grade female math teacher who was in her middle thirties, a veteran teacher at the school.

• A seventh grade female Culture Studies teacher in her early forties and a veteran teacher at the school.

• A female Computer Science teacher in her late thirties who taught computer programming in the Upper School. When the school converted to electronic/laptop classrooms, this teacher came on board.

• A female Spanish teacher in her early fifties, teaches seventh and eighth grade Spanish at this school. She has thirty years experience teaching in this school and in third world countries.

• An eighth grade female science teacher in her early forties and a veteran teacher at this school.

• A seventh grade female Global Connections teacher, about 30 years old and teaches students how to work with their computers. She is a veteran teacher at this school.

• A female librarian in her early forties who is a major player in the technical operations. She is a veteran librarian at this school.

Teachers in this school who once taught in the traditional classroom now use computer technology to integrate art/visual art, English, history, and computer science into an interdisciplinary curriculum.

Data collection

One of the strengths of case study research is use of multiple sources of evidence including documents, interviews, and observations. The following data were collected from each teacher-participant:
Interviews. Interviews were conducted using the following open-ended questions:

1. How did you respond when you were first informed that you would soon be teaching in a totally new educational format, the laptop classroom?

2. Now that you have settled into teaching and learning in the laptop classroom, please compare your teaching experiences in the traditional classroom with those you experienced in the laptop classroom.

3. What changes did you make to adapt your original lesson plans to an electronic laptop classroom?

4. What program or system innovations have you suggested for use in the electronic classroom to enhance your teaching and the students learning?

5. How has computer technology affected art education and interdisciplinary integration at the Country Day School?

6. How have the electronic classroom lesson plans, artifacts and outcomes affected the educational environment?

7. Do the outcomes of the electronic (laptop) classroom reflect students’ understanding of the teacher’s expectations for the assignment?

8. How has the acquisition of computer technology and training enhanced or hampered your effectiveness as a teacher?

9. How do you prepare a student for the standardized/proficiency tests within the electronic (laptop) classroom educational format?

The interviews were tape-recorded and observations documented. To preserve confidentiality of the teachers and information, pseudonyms were substituted for “real” names when transcribing tapes.
Observations. Research observations were conducted during normal class periods. Observations were noted in a five section, tabbed, notebook, one section for each day of the week.

Notebook accounts reflected that day's schedule of interviews and observations. Teachers' name and grade level observed were also noted. The researcher focused on teaching strategies and classroom interactions between teachers and students.

During interviews teachers identified how they were able to translate their lesson plans from traditional teaching to the new electronic format. The conversation included problems encountered, and problems resolved.

Web Site Lesson plans. Copies of electronic lesson plans used by teachers were also collected. These lesson plans were generated by teachers using the school's designated software. All plans were placed on the school's Web Site.

Established Web site lesson plans from a museum, or gallery, or other schools were also made available to teachers of CDS (see example at www.deyoungmuseum.org/ in Appendix A). An online lesson plan from another school and a CDS lesson plan can also be found in Appendix A.

Student completed assignments. Students' completed assignments were collected in the form of computer printouts. A "complete" assignment was considered: (a) work completed by hand or by computer using CDS software; (b) Web free images; or (c) textual documents downloaded from the Internet.

Interdisciplinary Development Meetings. Two ninth grade Interdisciplinary Curriculum (IDC) development meetings were tape recorded. The meetings were
conducted by one IDC teacher who simultaneously took minutes on her laptop. She guided the meetings through some polarity discussions among the teachers. Upon completion of each meeting, she immediately sent minutes from her laptop to all members including present IDC Committee members.

During the summer months, IDC members participated in in-service work to be Ready for school opening in the fall of 2001. Resolution of issues and planned program changes may be found in Chapter Six.

Methods of Data Analysis

Content analysis was utilized to analyze data from electronic classroom interviews, observations, documents, and laptop usage.

Closed response questions. Positive and negative answers to questions one and seven were tallied. Reasons for answers were not considered.

Open-ended questions and observations. Questions considered “open-ended” (i.e. two, three, four, five, six, and nine) were analyzed as follows: (a) direct responses (b) comparison of responses (c) similarities and differences noted, and (d) conclusions drawn.

Laptop usage. Laptop software usage was analyzed using four criteria: (a) number of new and current program software, (b) number of program prototypes (i.e., those under development), (c) number of programs on the horizon (i.e., programs the school anticipates bringing into their technology system), and (d) number of programs utilizing future laptop research.
Student Documents (e.g., student assignments, downloaded documents) and Products. Student documents and products were analyzed by degree of student understanding of teacher assignment. Degree of understanding was determined by comparing teacher criteria to student product.

Patterns

Patterns emerged and were noted. An analysis was prepared based upon a (1994) definition by Yin. According to Yin (1994), pattern matching is considered to be one of the best analytic strategies in a case study. Pattern matching compares an empirically based pattern with a predicted one (or with several alternative predictions). If the patterns coincide, the results can help a case study strengthen its internal validity (Yin, 1994, p. 109).

Pattern matching involves looking at the data for literal and theoretical replication. Literal replication is achieved when the theory developed from the case study corresponds with the theoretical pattern indicated by the literature (Yin, 1994). In contrast, theoretical replication occurs when pattern in data relates to theory in literature (Yin, 1994). Data in this study was scrutinized for both theoretical and literal replication.
CHAPTER 5

PRESENTATION OF DATA

Introduction

In the second year laptop study published in 1998, Rockman ET AL Research stated: “A primary goal of the laptop program is to demonstrate that full time access to ‘real world’ business tools produces substantial educational benefits by supporting and facilitating learning” (Rockman ET AL, 1998, p. 1). However, educators continue to support the caveat, or fear, that students will come to rely so heavily on their computers to do their work for them that when their laptops are out of order they will not be able to function.

In this chapter, data collected from the Country Day School (CDS) will show how far laptop teaching and learning has advanced at this school in the last four to five years and with a focus on art education in this new learning environment. My case study was conducted with the librarian and fifteen teachers. Their disciplines included English, science, art, foreign language (Spanish), American history, art history, digital imagery, computer science, culture studies, math/algebra, and
interdisciplinary curriculums. Included in this study is a report on the CDS future laptop teaching and learning devices, Videostreaming (Broadband), Video conferencing for laptops, and Webcasting.

**Changing role of the librarian.**

The library's evolving role in a digital age is one that helps to facilitate collaborative learning by blending content information, technology and active learning. In the new teaching and learning paradigm that has been so often espoused (guide on the side vs sage on the stage), faculty and reference librarians form dynamic collaborative relationships (Evans, 2001).

This is certainly true at CDS, their librarian has her card catalog online and she has worked out a networking program that opened doors to acceptance of the laptop classroom. She is happy they no longer have to manually create cards for the catalog. She has found that she can use the computer in many ways she never thought of before. She sees her role as librarian as a major player in the technical operations of a school, one who contributes to the architecture of new teaching and learning environments for faculty and students, and who is able to provide instructional support through online resources.

The Library Information Access (LIS) program can be seen as a digital information desk and as an entirely new course of instruction for using the LIS. Digital access to information through the library facilitates the students' active learning enhancement of inquiry and critical thinking skills and active engagement in
information management (Evans, 2001). Three types of libraries are available at CDS: (1) manual, (2) books on the shelf, and (3) online. The Repository Library is a network of digitized pictures, located by icon, which gives more access and options to its users. The librarian teaches students how to analyze data as relevant to being fact-based or biased (fiction). The online archives library for faculty and students allows the user to be working in one discipline and click to another.

The librarian is the individual who selects the best databases available to the schools and provided, through subscriptions, full text data from vendors of the database. Because of this students do not have to visit the public library. They can go online and get data and information via their laptop. This is a great help for assignments that are short in duration. At the sixth grade level, a child creates his/her own website at CDS, which will help them get to online catalogs, databases, and other online resources.

Specific databases CDS has made available to their library users are (1) World Book program, an online encyclopedia, (2) National Biographies online, and (3) a Social Resource Service which provides the user with full text magazines, articles and government documents. The school no longer stocks magazines nor puts them on microfilm. The goal is to move information to the people, the teachers and students and others with the need to know. The librarian teaches teachers and students how to use the tools and programs by using their laptop computers. They use the “Discourse” program, which is designed to permit interaction between teachers and students. CDS librarians and teachers will soon be using portable
classrooms and taking these classrooms to other schools and libraries to do in-service and developmental teaching. A basic goal of the educational partnership (faculty and librarians) is to provide an online network of learning resources to enable the students to enhance research skills, interact in a collaborative learning environment, and improve oral and written communication skills.

Changing role of the teachers

Teaching Assignments

Many of the Country Day School Middle and Upper Schools teaching assignments have teachers teach two subjects or teach one subject to two grade levels. For instance, the teacher of American history also teaches English and coaches Middle School football, basketball, and baseball. The Art history teacher also teaches English. The science teacher and the foreign language teacher are one-subject teachers but they teach two grade levels (e.g., science: seventh and eighth grades; Spanish: seventh and eighth grades).

The teachers who have taught in both educational environments do not feel that their teaching has changed much. What has changed is their teaching style; they have become more facilitators of and less dispensers of knowledge. Projects now include using the laptop to teach students how to organize information using a database, spreadsheet, researching a project on the internet, and using encyclopedias on the web (Herr, 2001). In most cases the CDS teachers do not accept their role as facilitator only, but see themselves as dispensers of knowledge. With their
computer-based management system, the CDS teachers became more facilitators of learning. This did not replace their role as a teacher; it simply made their job easier and expanded their role in ways they never thought were possible.

I asked each teacher the same set of questions. Sometimes during the interviews, a teacher answered questions before they were asked. To get an impression of what each teacher was thinking, each response to the following questions are detailed under each teacher’s discipline.

Questions:

1. How did you respond when you were first informed that you would soon be teaching in a totally new educational format, the Laptop classroom?

2. Now that you have settled into teaching and learning in the laptop classroom, please compare your teaching experiences in the traditional classroom with those you experienced in the laptop classroom.

3. What changes did you make to adapt your original lesson plans to an electronic, laptop, classroom?

4. What program or system innovations have you suggested for use in the electronic classroom to enhance your teaching and the students’ learning?

5. How has computer technology affected art education and interdisciplinary integration at the Country Day School?

6. How has the electronic classroom lesson plans, artifacts and outcomes affected the educational environment?

7. Do the outcomes of the electronic (laptop) classroom reflect students’ understanding of the teacher’s expectations for the assignment?

8. How has the acquisition of computer technology and training enhanced or hampered your effectiveness as a teacher?

9. How do you prepare a student for the standardized/proficiency tests within the electronic (laptop) classroom educational format?
Interviews and Classroom Observations

Interview: Eighth grade science teacher.

This science teacher is not unwilling to use science education software such as the online Science Notebook (SNB). An overview and tutorial of this program can be found at website www.knossos.org/knossids. Knossos is a Greek word meaning the act of acquiring knowledge. The teacher uses this program when necessary, but believes the students understand the concepts better when they are involved in performing the experiments for themselves.

In the article “Software Focus on Science Education,” the author, Amberg (2001) believes,

Interactive learning and informative content are vital assets in any science classroom. Several software programs, such as the online Science Notebook exist to help students visualize and analyze scientific information. Some programs stimulate laboratory conditions for hands-on virtual experimentation while others provide searchable information to supplement textbook learning (p. 44).

A good example given by Amberg of such a program is one for students who might have an aversion to taking biology because they have to dissect a frog, the program Biology of Frogs, is available. In the anatomy module, the student uses a scalpel to make the initial incision on a graphically enhanced digital frog. Once the realistic internal organs are exposed, the student uses forceps to begin removing each of the identified organs. There are many more programs using digital images
and animation to make teaching and learning more student-friendly. A comprehensive teacher resource manual, accompanies the programs and consists of a software overview and outline suggesting grade- and skills-based activities, additional activities and tasks to strengthen students’ skills, suggested teaching strategies, and blackline masters for non-computer activities (Amberg, 2001).

The Science Trek program also helps teachers with assessment strategies, bibliographic materials, video resources and Web resources and provides collections of digital and video images that could be used in the classroom (Amberg, 2001).

The science teacher at CDS response to the first question was,

Well, I was neither extremely enthusiastic nor worried. I just thought that it would all work out. What are teachers, if not flexible? Always new things come along and you learn from them. Country Day School was already using computers but we had a computer room with a few desktops. Some classrooms had a couple of computers in them. So it was very different then as to how it is now. I was okay with it, not terribly upset.

Her reply to question two was,

Well, part of the difference we probably are not even aware of because we are so immersed. You don’t notice change when it is around as a constant. If I were to try to think of the ways my classroom has changed the most, some of them, changes, are simple and small yet notable. For all students and teachers, it is just the quick access of information for us. You just pop on the Internet and find out all the latest information on your subject. It is different; it used to be more of a library experience. Teaching has gotten easier every year and the resources more plentiful.

When we first started using the Internet, it was a horrible procedure. We had to go to the computer room, go through Gopher and Pathways (early online links). It was slow and hard, tedious work. But, today, it is wonderful that it is now an easy process.
Her best response for question 3 was,

In my last few weeks teaching about density, the students gave a major lab report and presented a lab experience on finding the density of several different objects. I had given them chocolate, a metal bar, and milk (both whole and skim) and they had to figure out the logistics for density. They had already figured out volume and mass from earlier lessons in order to calculate the density for all these objects.

She did not have an answer for question 4. Question 5 is not in her purview, her remarks to this question cannot be specifically noted.

Her answers to question 7 and 8 are embedded in the next two paragraphs.

*Question 7.* The only way I used a computer was as a word processor for this project. The students did their write up and it was a fairly involved write up. They showed the purpose for the whole lab, the procedures that they used for each item, the calculations for each item, did more than one trial. They found the density twice, then came up with a conclusion as to what they thought was the density. So where it was helpful with everyone having a laptop was when they messed up, they could make revisions easily. If they were doing it with pencil and paper, I would come around and cite the problem, what needed to be done first, they would have to rewrite the whole thing. Not only would it be more work, but they would be less likely to do it, and as a teacher I would be less likely to demand it be rewritten. *Question 8.* Because you would have to rewrite the whole thing and it would not be worth the effort. But on the computer, it just involves inserting here, changing that and cutting and pasting this. It works so fast that it is easy to have them hand in a very polished product. Some of the students have such bad handwriting that it is hard for the teacher to grade and so we find it discourages the student from doing it. It is so much work and effort that they put down the bare minimum. When the students are working on the computer they find it a lot easier to type and they are willing to do a lot more. I see an improvement in the quality of the product.

Question 9 refers to giving proficiency tests, it is not applicable to her grade.

I asked her if the students could go on the Internet and look up density information to get some ideas for their report? She said that she did not notice one
student doing that. “I told them to look on page 22 of their Matter Book and see some common densities for various kinds of material. So in making your predictions you have some idea, but I did not have any student look it up and check their data against the information on the Internet.”

Again, I queried her, “Did you bring it to their attention or did you think about bringing it to their attention?” She answered:

I guess my answer is no to both of these questions. Actually I try to encourage them to do anything that would help them to be accurate: to talk with anybody, do as many trials as they wanted, they could do as many methods as they wanted. They did not do too many of those. They are usually more polished in their final product than if they were doing it by hand. When we had desktop computers they were not as accessible as the laptops. It was sort of an unequal benefit… some students had more access than others, meaning some students did not have computers at home. Now everyone has a laptop. Where we see a difference is the access to a printer. Some students still do not have a printer at home.

Observations: Science classroom

She posted the assignments for the week of February 6 – February 12 for a class of twelve eighth graders. All the students carry a laptop into class. The teacher wrote questions on the blackboard and used an overhead projector. This day the students were preparing for an upcoming exam. She asked the students to “turn on lab reports” using their laptops and copy the above assignment and see what they need to ask related to the exam. The class was on Density. (They had completed study on volume and viscosity – the internal friction of a fluid which makes it resist flowing past a solid surface or other layers of the fluid). A student asked a question about density and the teacher supplied the correct answer. The teacher asked a
question about volume, and a student answered correctly. She requested they pull an image up on their computer and follow the teacher to get the answer. The teacher asked questions they needed to know for the exam. She used advanced vocabulary words for 8th graders. She posed a hypothesis about viscous oil going through water and a student answered correctly. She reminded them that viscosity and densities are not related. A short demonstration with oil and other material such as an ice cube and water was given to introduce the students to the interaction of the three elements. To make sure she got and kept their attention, she asked the students to close the covers on their laptop computers. She has very good class control.

She asked the students to postulate an outcome when oil, ice cube and water are combined. A lot of teacher/student interaction began. She demonstrated the development of the contents of a lava lamp. The lava lamp is a good example of what happens when oil, ice cube and water are combined. (The oil becomes heated when the lamp is on.) I got caught up in the demonstration of the interaction of the contents of the lava lamp. I thought of some questions I might ask but time did not allow for them. The day I observed her class she was demonstrating how the lava lamp was manufactured. It was amazing. I was so intrigued, I almost forgot to get an appointment time for the interview.

She wrote formulas on the board for the class, those student(s) who were absent could sign-on to the CDS server for this class and get notes needed for the exam.
Interview: Seventh grade Cultural Studies teacher.

Cultural studies, an interdisciplinary course, integrated English, history, social studies, and geography. In this double period class students explore the cultures of traditional and modern China and Africa, the historical and present worlds of the Native American as well as the teen world of the '90s. This exploration is reinforced through group and individual projects. Students write and read extensively, reinforcing grammar skills, developing their ability to reason clearly and abstractly, and honing their ability to write personal and analytical essays. Active learning is one of the guiding precepts of the course (CCDS Middle School booklet, 1999). Cultural studies is a fascinating subject, and this teacher supplied some great answers to my questions.

The Technology Planning Committee made the decision to go to laptops in the classroom. I was excited about the possibility of everyone having a laptop and the equity it would bring to the program around the use of technology by kids.

First of all, if everyone has the technology there will be those who will be more proficient at it than others; but if you just have limited access then those kids who want to take the time or have a special interest are going to go leaps and bounds ahead of other students who just use it now and then. But if everyone is forced to use it on the same basis it becomes more equal. Another thing is it takes away the 'geek' factor. Before they had laptops there was a certain perception by a lot of students that if you were really into technology you were a 'geek.' Because at this age [seventh graders], all through adolescence, brings about conformity because everyone has a laptop. It's the "in" thing for everyone, including those who have trouble processing from brain to arm do better with a laptop, disability, because it levels the playing field.

One difference between the traditional method and the electronic method, for example, if I am teaching in the traditional method and I'm talking about Columbus and several students want to know more about
what was going on in the world at that time, I can stop or pause the lesson right there, get on the Internet and find the answer. We do not have to wait until that subject comes up to do that research. I taught health and when the students asked about vitamins, and I didn't have the answer, we could get on the Internet and find out the answer together. The student may not want to know at a later time in another lesson and the window of opportunity will close. With laptops, students can take advantage of the learning opportunity at the moment it presents itself.

When I asked about having to put her lesson plans on the web, she stated:

We do not write lesson plans as formally as public schools. I am always looking for ways to use the laptops to advance my teaching style and students' learning process. For example, the lesson plan in the third quarter was to learn about an African nation. I just gave them a sheet titled: 'Just the Facts Ma'am.' One of the students selected Egypt for her African project. The student had built a pyramid (see Fig. 3) out of some cardboard blocks she had made. On each block the student had placed a fact, a flag, some cultural art, or some other cultural information of Egypt (see Fig.4).

Figure 3: Pyramid made out of cardboard blocks
The second stage was a written assignment. Research of the people of this country was required. They did a lot of research online. Stage three was an oral presentation of their country (Namibia). They were to identify current events, make predictions for their country's future based on these events and do a website about that nation.

Doing a web page unites the stages and the students get a feeling of continuity as one, a single project rather than three different projects. It turns each stage into a new thing. The laptop technology wraps it together as one project and it becomes less overwhelming for the student. Using the web page there can be a continuity so when the student does the oral presentation they can cover all three stages instead of just the final stage.

I asked the students to write a poem. The students not only wrote outstanding poems, but they used the appropriate PowerPoint images and
images off the web to decorate their poems. They did the artwork on their own. It was not a part of the poem writing assignment. The images were in support of the content of their poems.

Each student in a class of 37 was to write four articles for their magazine. Note cards were due to be turned in on a specified date and 90 percent complied. However, three of the students went to a web site and printed off their information, highlighted the required data, and turned those pages in as their note cards. I rejected those pages. Ninety percent of those students had no problem with the teacher’s expectation for the assignment. The other ten percent saw an easy and quick way to get the assignment done in a short time. Their only interest was getting the assignment turned in on time. This lowered my expectations for three kids out of 37. I am teaching them to read and discern information, learn how to make notes that they can expand on. Out of the three that did the research, two will never do it again. Not so sure about the third student. Poor grades were given to these students who normally get good grades. The low grades did not go over well with their parents.

Researchers do not give us information that there is a downside, not necessarily a downside because of the teacher’s lack of explaining (clarity) being detailed enough, but it is the laziness of the student. Difference between a pencil and a quill, still write with them, just a different way to do it.

The standard SAT test is given once a year. It is not given electronically. We do not prepare for proficiency testing because that test is given only in ninth grade. I would like to see some of the tests placed on our web site.

Observations: Cultural Studies classroom

This is a seventh grade class of approximately 20 students.

Students “booted up” and went to the African established links to do research on their African projects. Students country projects/work can be found on the CDS website. Students found using laptops more profitable because of the visuals that support their assignments. Outcomes not only met the teacher’s expectations but in
most cases they exceeded her expectations. Students helped each other over
problem spots. Students e-mailed completed projects to the teacher who graded it
and e-mailed it back to the students.

The 7th and 8th grade students are doing outstanding assignments using
knowledge they learned in the 6th grade. They answered questions submitted by the
teacher and went online to get other needed data. The traditional classroom student
would need to go to the school library or the public library to gather their data; it
would be so time consuming.

The advantage of a wireless laptop classroom is it reduces classroom accidents.
Wires can cause unnecessary accidents as teachers wearing skirts moved about the
classroom helping students. Teachers and students might also have tripped over
wires.

Interview/Observations: Art History classroom

This is a class of approximately 12 to 14 eighth grade students.

The teacher was interested in being interviewed during his students class time.

His students were studying the art history of Italian Renaissance artists. The
students booted up computers and went online to art museums in search of the
Italian Renaissance artists’ paintings. The students were to note the basic elements
of art such as color, line, and composition in the paintings. Their assignment was to
write one paragraph on the painter’s style, one on composition, one on the subject
of the painting, one on the colors, and one on the overall meaning of the painting.
They wrote a one page critique, downloaded a copy of the painting, and published it
on the teacher’s web site. They do not need an art collection room because it is a setback, as the quality of these slides are not very good. The art history class used laptops as a magnifying glass for investigation of art worldwide, but could not teach as well without the laptops and on-line capabilities. Student images are found on the CCDS website. Upon completion of their assignment, they e-mailed it to the teacher. He graded the assignment and e-mailed the graded document back to the students. He also took a digital picture (bust image) of each student and sent it to the student’s web page. To review these websites, log onto www.countryday.net/MS/arthistory.

Observation: Middle School Art Teacher

The students began class by searching the Internet for artists that are impressionists. They were able to name them all. The teacher had students look at these artists’ paintings and for their assignment they were to paint a piece of artwork in the impressionists’ style of painting. They went on the Internet, via laptops, to various museums to select images for their assignment or obtained pictures from magazines and photographs. The computer images were printed out. Students began impressionist artwork projects. The students selected colors and learned how to mix and apply paint in the impressionist style without using the computer graphics program. The art classroom control was not as static as required in some of the other disciplines.
Interview: Seventh grade Math/Algebra teacher.

I asked the math teacher my questions and her answers follow:

Math/algebra students use the Scientific Notebook (SNB) website for their classes. An overview and tutorial of the SNB program is available at their website, www.mackichan.com/. Graphic calculators are required for standardized tests. Calculator use begins in the tenth grade. The geometry teachers use the sketchpad program in their classes and the Minitab program is used for statistics.

However, the math teachers believe that it is to their students’ advantage to, first, have them learn how to perform mathematic/algebraic calculations by hand. They feel too much reliance on their computer to do their work is detrimental to their learning process; when the computer is down and they are asked to calculate a problem, they do not know how to manually perform the calculations by hand. The math teachers make sure their students understand how math is performed and are able to do calculations by hand before being permitted to use SNB or their computer calculator. It is a measure used to prevent students from relying solely on their computers to make their calculations.

The math teacher continued:

It became a requirement at our school that all Middle and Upper School students have a laptop. The goal is that students would use their laptops as part of the teaching and learning experience, finding uses for the devices within network connected laptop classrooms as well as outside the classroom. Mathematics is a natural course for the use of laptops and technology as teaching and learning tools.

The Scientific Notebook (SNB) is used for the mathematic courses. SNB is a word processing package that incorporates a Maple Kernel which allows the students to perform a wide variety of mathematical operations. The Maple Kernel does not require typing in any code. Simply type the mathematical expression (whatever it maybe) and clicks on the appropriate operation to be
performed. SNB then performs the operation, makes the calculation. The students learn to use SNB in a relatively short time because of its extensive help files. To grade the students' work as uniformly as possible so that all students are graded by the same standards, a rubric is developed.

A laptop was connected to the Internet so at times the laptop could be used to present demonstrations which visually illustrated the instructional topics. Sometimes a laptop was used to present notes dealing with a particular topic and these notes would then be made available on the Web. At other times, sites that contained related materials were accessed.

The use of technology can enhance understanding and facilitate learning. For example, certain animations were shown that definitely helped students grasp the concept being illustrated. Students appreciate and utilize a good website. It serves as a valuable resource that students visit often for all sorts of information, such as being able to download sample exams. It is very important to provide solutions to these exams. Websites can also provide solutions to the homework problems when students request it.

The computer science course acquires technological information from both students and teachers (faculty) to create their own programs to meet the innovative requests of their teachers. The teaching of mathematics and all subjects must undergo constant change if students are to be prepared to enter a rapidly evolving technological world. It is no longer a question of whether to use technology in the teaching and learning experience. It is now a question of what technology to use, how, and when to use it.

Observations: Math/Algebra Class

Due to conditions beyond her control, she was unable to set a time for me to do a classroom observation.

Interview: Global Connections teacher

The global connections course is the introduction of computers to the CDS sixth grade students (see Appendix C). In this grade the students learn how to care for their computers, identify hardware elements, and learn how to use the software. It is in this course where computer usage begins. The students begin learning how
to organize their tasks through Task Cards and complete the course by designing their own websites. The teacher has six things that the students must know to perform tasks to accomplish their assignments. She has them posted in large red letters on the wall. The BIG SIX are: (1) task definition, (2) information seeking strategies, (3) location and access, (4) use of information, (5) synthesis, and (6) evaluation.

As I sat next to a student, I ask her “How do you like the laptop classroom?” The response was, “I love it.” The teacher tells us they learn all this stuff in the sixth grade, principally in her class. Learning how to use the keyboard touch system begins in the fifth grade when they get their first laptop. The sixth grade is considered the basic detailed introduction to using their computer technology; they become more independent as they can move from class to class.

The global connections teacher’s sixth grade class is considered the basic detailed introduction to using computer technology. This class progresses from the mechanics of the computer (hardware), to how it works, how to use it and the programs (software), how to obtain various kinds of online information, and how to develop their own web page. Global connections class is almost all encompassing. Students start with the concept of the Internet, what it is, and talk about the proper use of the Internet.

I came earlier to observe the students on the day of the interview appointment. When I entered the classroom, the teacher was reviewing the basics of the computer and how it works for the students exam coming up on Friday.
Task card

Task cards were being created for the Microsoft Office program. They were to write out the steps to a program and teach them to the rest of the class. When I asked for more information regarding the task card, she replied:

The student creates the task card, a plan for teaching a particular skill to the other students, following the Big Six requirements. The teacher provides the students with a list of tasks from which they can choose to develop a task card or choose something different. Upon completion of the task card they must teach that skill to the class who grades them along with the teacher’s grades. I combine the grades and posts a single grade for each student. An example of a task card skill may be how to insert formats into the cells on a Microsoft spreadsheet. I also may teach them how to bring sound into their project. I walk the students through the assignment showing them where to get the information, how to identify bias in persuasive marketing, how to recognize who is pulling you in, and how to evaluate their ethics utilizing the Big Six process for information gathering. By walking them through the process, the students are thoroughly grounded in computer use and online information assessment during the first semester.

Web Page

The teacher asks the students to select a child from another decade (e.g., 1940-1950) or from another country. The students are asked to create a website for that individual (see Fig. 5). Each web site must have a title page (e.g. Welcome to my World), the child’s name (e.g. Elizabeth Huff), city, state and year in the child’s life (e.g. Columbus, Ohio, 1945), a picture of the child, a biographical sketch, map, historical event for that child’s decade; optional items are a poem or recipe, pictures of the child’s hometown or family, book review, bibliography, or guest book. After the students successfully creates a fictional web page, the students must create a web page of their own to complete the course.
The teacher continues:

I walk my students through the process of developing a web page. The assignment begins with the student coming up with twenty fictional characters set in a time and place that they are studying such as Central America, Asia, Russia and Ohio history. It may be a child from Japan or India. Twenty basic sketches are submitted, out of that twenty a student selects one that they want to research in that time and place and writes a biographical sketch.

Certain information is required for the student’s biographical sketch: year, name, age, date of birth, events that occurred during that year, and the character of the person. The sketch details historical, societal, and political things that happened in that time and place. They are required to draw a map of where their person lived, write an article on a specific thing...
that happened during that time, scan or draw a picture of how the people dressed during that time or they can dress up like that character and use a digital camera to take the picture to put on the computer or find pictures on the web and obtain permission to use them in their project. They can read a fictional book about the time and place of their character and write a book review. All this becomes a part of their web page. The teacher also discusses copyright and trademark issues because the students are interested in these things.

They need to have links to their web site and e-mail site, so whoever is reading either may contact them. Creating the necessary links is learned and performed in the second quarter. In the third quarter the student has an option to include a poem their character would write or a recipe using Netscape Composer, how to use this composer to do research and for a special purpose like creating a website using Microsoft Front Page Program.

Reviews are created in the fourth quarter. Reviews are based on evaluating the web page and how it relates to the rest of the sixth grade curriculum. I am in constant communication with all the other sixth grade teachers and know their curriculum and what they are doing in their classes. I try to relate what is in each of their classes to the rest of the sixth grade disciplines.

In their language class students prepare PowerPoint presentations as well as English and geography. The PowerPoint program is used often in the sixth grade to be sure every student is ready for the rest of his or her educational years.

I was a Middle School librarian first and involved with information technology. I did not teach in a traditional classroom. I have only taught in the electronic classroom. My students have never been taught in any learning environment but the laptop classroom. I would try to get a laptop program started if I were forced to teach in a non-laptop school because I feel it is easier to teach children via computer. One outstanding innovation was the students teaching their classmates. Four years ago when I set up this class, some students came in without computer experience and some with a lot of experience. I sought the assistance of the Learning Specialist in the development of this class who advised me that children learn well from one another. Four years later, most of the students have come in with some computer experience. In an effort to be sure all student types and levels of learning are taught, it was found that students teaching each other was one solution because kids learn best from one another.
A different assignment was that on vocabulary – going from the concrete concept to the abstract. I worked out assignments that though abstract, could be taught in a concrete manner. The exercise – learn different parts and terms of the computer, then find a computer advertisement and pick out these terms (ROM, RAM, HD). They were to circle the terms and write a little script so they could explain to others the meaning of these terms for every exercise and topic I come up with. I try to figure out a way to make it as real as possible for the students. With the web page I can teach them how to create a web page. I am constantly being innovative to develop ways to make the lessons real. It is a fun class to teach. It keeps me challenged to be innovative. Students work on laptops and they e-mail their work to the teacher. I grade their work and send it back to them via e-mail. I also e-mail assignments to my students so everyday e-mail communication becomes the norm.

Observations: Global Connections Class

Training on the use of computers begins with a 6th grade class of twelve to fourteen students. The teacher has a computer central processing unit, a laptop and a VCR disassembled. Students got to see and handle the inside elements/parts of this equipment, learn what they do, and how these parts work together to make this equipment operational.

The assignment for that day was to open up the Map Machine located at the National Geographic website. The students learned how to download images using filename.jpg. Every student had a laptop open and worked at accomplishing the assignment. Their week’s worth of assignments were to create their web page. On Tuesday they were to begin the web creation by having a map of character’s area saved; Wednesday they were given a handout to read on “How to Write a Book Review;” Thursday was the day they read their book reviews in class; Friday their
final biographical sketch was due. Beginning on Monday of the next week, the students worked on assembling their web page. They took all they had done during the past week and began to organize it on their web page.

The teacher asked the students to locate some geography maps. She guided them through the process for locating the maps. For the less proficient students who were having trouble bringing up their maps, the teacher advised them to locate Map.com and explore the geography maps. More proficient students assisted those who were less proficient. One student was struggling to get a map on to her screen. She was so excited when the map came up on her screen because it meant she could progress equally with her peers/classmates. After locating the maps, they answered questions on a handout about their maps. The teacher looked for students needing the most help and provided assistance to remedy problems in a timely manner. She had good control of the classroom.

The teacher was giving instructions to the students’ on how to create their own web page. They are required to take the initiative to learn how to do their web page. Two girls won’t know how to do their web page unless they go to their class website and review because they were not listening to the teacher and her instructions for computer practice on their own.

Interview: Computer Science Teacher

I am involved in the online development of the Interdisciplinary Humanities Curriculum (IHC) for the ninth grade. Humanities of literature, painting, music, sculpture, architecture, dance, and discipline of philosophy permeates all the arts, including digital imagery, and finally unites them all. Arts, taken together,
are a separate field of human knowledge with their own area of exploration and discovery, and with a method of their own. I also teach computer language and programming.

I had no trouble with it being technology, but was terrified because suddenly we were trying to apply technology to subjects which we did not know a whole lot about. So all of us were quite terrified. What terrified me was the fact this was brand new. Nobody knew how to apply technology to it, so that became my responsibility and the fact that I was holding up that part of the course was very intimidating. Once we decided to do it, we decided to use a timeline as the basis for a website which when you get to working on it, things begin to fall into place. When you first start out it seems so overwhelming.

Loved it that the school was going laptop because students were much more engaged as they are very, very proud of the work they are doing. They do not realize they are beginning to incorporate English, art, history, and other disciplines into all their schoolwork. It is becoming a whole as a part of their vision. It is absolutely starting to happen. Using this web site timeline is starting to enhance that. Every student has a series of web pages into which their work goes following their timeline for the whole year. They are making web sections that deal with each of their periods they are studying. If they are studying Rome, they are reading something about Rome for English; studying history, they are doing something in art that relates to it. They incorporate it. All are putting their papers on the timeline so all their parents can see it. All classes are incorporated into one. For example, a student prepares a report on Julius Caesar and places it on the web page timeline so when anyone clicks on Julius Caesar the report pops up. The report must reflect knowledge in all three subjects: English, art and history. The website is the focus from which all other work can be accessed.” To view some of the students work visit website www.countryday.net/ and designate which school, /MS for Middle School or /UP for Upper School and follow the signs.

At the end of the year, students will get a CD of all the work they did during the year to take with them to the next grade. The CD becomes a point of reference for the upcoming grades. The students’ records are on their CDs. In art they make covers for their CDs. So many of the students are visual learners. If you just hear a word all the time, once you can see the image, you remember the word. You have a connection to the abstract information presented in the classes.

I could go back and teach computer programming using pencil and paper. Take laptops home to do homework on their problems encountered, are brought to class next day, and teacher and students work to solve the problems.
rather than giving out more information per the traditional classroom. Lecture all day long and students would not get it. When they try to apply what the teacher is talking about, suddenly they have a specific problem and they are forced to learn it on their own. They may be stumbling on a variable someone else is stumbling on, but whatever their specific problem is, the teacher can deal with it. When you are lecturing you do not really know. Children get a much more individualized learning process with laptops.

Innovations: submitted suggestions for software program improvements

The computer science teacher reviews and recommends/develops programs for innovations submitted by other teachers to improve the teaching and learning process at CDS. She creates programs for teachers and shows them new ways to use a program.

A teacher says to me if I could just do this or an English teacher says if there is just a way for all of us to work on the same papers. Get a program to do something to enhance the teaching and learning process, she and the teacher(s) will put their minds together, do a little research, and try to come up with something that would satisfy the way they would like to teach. A year ago they used a spreadsheet format (MS Excel) to put something like a map of science diagrams on a website. In Excel they made box cells small enough to insert comments about the map or diagram, so when the cursor was passed over the element the comment would pop up explaining or naming what was happening, whatever the diagram is doing on the map. So this technique has been incorporated into history, science, art, English, and all the other disciplines. It is a wonderful way to bring a picture of some sort to reinforce the lecture: put picture in background, cell size fairly small, insert a comment wherever your map is, use a red triangle symbol, and when the mouse passes over it, the comment appears. The Front Page program is used for creating web design since the school is set up to use certain programs for school wide use.

Art is beginning to infiltrate into a lot of the courses. A teacher may introduce a subject and the students will respond in different ways and they have different learning styles. The laptop affords each student the opportunity of selecting his or her learning style for the courses. The addition of art to the interdisciplinary curriculum is a different way for teachers to connect their subjects visually. History does not relate to English, nor to science, but bringing in the visual aspect can tie these subjects together. This is the first year for the ninth grade humanities to become an integrated interdisciplinary course. The
disciplines involved are English, history, art, and computer science. This course
is held four days out of five for 130 minutes a day. Visual art will be centered
around a website to bring the subjects together focusing on a timeline (class
year). Each student will construct his or her own timeline for completion of the
project within the established year timeline” (see Appendix D for an example).

Interview: American History/English teacher

Laptops are used for taking notes, doing assignments, and CD
tutorials. Interactive student tutorials on the American Nation replaces
their workbook. The laptop becomes a review tool prior to taking tests.

An assignment was to select a country that you would pretend
you were from, then find out all about that country, culture, social
and economic conditions in that timeframe. Bring the family from
overseas to the U.S. in 1750 and follow their lives through the 1960s,
with their projection into the current century. I have a cabinet full of
American history videotapes that the students may check out to help
them complete the assignment. Students get more information online
about outstanding men of U.S. than offered in the textbook.

I let my students role-play the men who wrote and signed the
Constitution. The videotapes help them get into their roles of crafting
their own Constitution. Using CDs, the students can recreate a
government debate and read with more focus and motivation as they
prepare their constitution. Students learn more visually than by the ear.
Two more eighth grade semester-long assignments are creating the American
Diary and the Conflict and Resolution Magazine (see Appendix E).

Observations: American History classroom

This is a class of fourteen eighth grade students. This teacher also teaches
English and is the coach for the Middle School football, basketball, and baseball
teams. He is not into computers; he has a laptop but tries not to use it too much.

Today he was teaching American history from 1746-1800. Four girls were sitting
on the floor and ten boys were at the table. The boys rushed into the classroom so
they could sit at the table.
First thing the students hear upon entering almost any class is "boot up," to get their laptop online to take notes; particularly in this class. The teacher lectured for the class time focusing principally on the boys. The girls were seldom noticed unless they had asked a question.

Interview: Visual Arts teacher.

This teacher is the Art Education Coordinator as well as teacher of Visual Arts and Photography. She uses Adobe programs in teaching visual art to her art class and the digital camera in teaching digital imagery in her photography class. Her class sounds much like Art Education 252: Computers in Visual Art at The Ohio State University, Columbus, Ohio.

A new CDS curriculum under development is the online ninth grade interdisciplinary humanities course. This course includes art education as part of the descriptive data for the course contents. It was mentioned that they (the disciplines involved) were having to develop and make compatible each discipline because CDS is required to meet the Proficiency Test requirements. This has been one of the hardest things to accomplish in this new course.

Every teacher has the same core values even though their teaching styles are different. They arrive at obtaining a viable product that works evenly with each discipline represented in the curriculum. Laptop computers help students do things they have never done before. For example: If the student is not proficient in the manual use of pencil drawing to paper, but the student is able to create artistic works via laptop graphic software.
Digital Imagery (digital imaging) (see Figure 6)

The proliferation of all Internet-based information delivery continues to shape the industrial and educational world in which we live. Because of this, we are finding that we are living in an increasingly descriptive graphic world, with a greater need than ever for effective graphic communication (Portz, 2001).

The visual arts teacher continues:

Good graphics selection involves striking a balance between form and function. Function refers to graphics ability to communicate the intended message. Form deals with the graphics visual appeal. Students are to learn how to select images properly based on quality and content, aspects of color and light: hue, saturation, contrast and brightness, as well as how to filter and enhance images for these aspects. They learn how to crop images properly in order to capture only the necessary content.

Figure 6. Digital Imagery
They are to understand and use opacity to eliminate hard lines and blend the graphic properly and understand and use layering to achieve a three-dimensional goal. They are to understand and use the ‘rule of thirds’ to achieve a balanced composition. The balance that graphic designers hope to achieve is called the ‘rule of thirds’ and this means a good graphic design should be able to be divided into three discernable areas of interest.

Observations: Visual Arts classroom

This ninth grade class is composed of twelve students.

Two students had malfunctioning computers so they had to obtain “loaners” for the day. First instruction was “boot up.” They worked on Web Page development.

Some students were behind in completing their .html assignment. She handed out a new assignment called a Visual Scavenger Hunt (see Appendix A). The assignment was to take 10 images of things around campus. She sent the students out in groups of four with a couple of digital cameras and allowed them 25 minutes to accomplish this feat. She instructed them to pay attention to where things were located in the picture. They were to redesign an advertisement using these images. The advertising images were to be made in layers. They took the images and overlayed them to create an entirely new image. They were to use wide and telephoto lenses and flash. They were to shoot pictures, then go back and review what was in the pictures. Class must conclude in time to allow students to unplug and pack up their laptops.

Interview: Upper School Art teacher.

Well, in the art studio with many different media, no way would the laptop replace all the media. It was evident to me that I was going to be working in a totally new art environment.”
I asked her if she had to come into the laptop world?

"To me, my problem was the integration of the laptop into what I was already doing. It did not mean to replace; it simply meant to include so I had no real problem with inclusion of laptop into the art classes. I just had to figure out how I would do the inclusion. The laptop is a great tool but it is just that a 'tool', one of many. I wanted to know how the art teacher had planned to include laptop usage in her classes with her students? She replied:

I use the laptop primarily as a research tool, and the way we do that is I have posted on my website issues of Scholastic Art Magazine. My students are given reading assignments from that magazine and they can download them from my website onto their laptop screen and read the assigned article(s). They also do research on additional articles related to their reading assignment that are listed on the website along with the designated magazine.

I have several hyperlinks where they can go make a hard copy of work of artists they study and put the images from magazine and research into a PowerPoint presentation. They are making a scrapbook of their images. My idea at the end of the semester is to have them look at the images they have chosen. They are to select their favorite images from all the artists in their scrapbook. Then begin to help them define what they think is good art and what qualities of those artists appeal to them the most.

I asked the Upper School art teacher how she might apply her traditional classroom lesson plan to the electronic, laptop, classroom?

I would use traditional sources, like look at reproductions in books and go to the library. I would have to gather library reference books here at CDS and schedule field trips. Unfortunately we cannot take as many field trips as we would like; be happy with a field trip a semester. There would be some information gathered from the field trip, but mostly would have to come from the books.

I suggested that with the laptops the students could go to art museums and galleries around the world.

The students already have access to various art museums and go there on their own. It is not part of the assignment. I like the idea of including it in their assignment. I have major hyperlinks for my students
called ArtMedia and Artcyclopedia, gallery quality art works from museums all over the world and the CDS Website. I have web page links to reproductions of my own work and have hyperlinks to other art museums. I also have a hyperlink for the students to get to certain articles I want them to read in a particular issue of the Scholastic Magazine. The school subscribes to this magazine, but by the time each child got a chance to get the magazine and read the article, much time would be wasted. I cannot afford a copy for every student so I put on the web site those articles I want the students to read and to get it done in a timely manner. For example, I ask the students to read an article on color by George Seurat using their laptops. No longer are excuses such as my dog ate the magazine or it was trashed during the cleaning of the house acceptable because the students must use the hyperlinks I have established. I can control where the students go and how they get there.

It took a while to figure out what to do with the laptop that made sense to the art environment because it is part of my job to use charcoal, paint, pencil, and clay, and the laptop was not going to replace anything but was coming into the arena to improve the classroom learning process, figuring out how to use the laptop that made sense to everything else. At CDS it makes an artist, living and dead, more accessible to any class, math or history. Math students can look up an artist that is applicable to their class (e.g., Leonard de Vinci) without the teacher having to know anything about that artist. It is the student’s responsibility now to do the necessary research on their own for a particular class. They need to know though how to integrate the information they found into their class assignment, be it in another discipline, history or math. Could have done it in the library, but laptops make it more accessible in some ways. The teachers in the humanities would have more complex answers to this question than I would. “Visual art” is vastly different from “making art.” The inclusion of laptops in the art class did not hamper my teaching style. I just had to find a way to plug laptop usage in as just another tool, or method, to accomplish the art assignments.

I think one of the things is what students can do with visual images like photography and digital imagery. In a lot of ways, digital imagery has grown out of photography showing what people can do with photography. But I think photography is an accessible art form for students because they do not have to draw the image, the camera gives them the image. Just as photography gave concern to the artist like it might replace (drawing, painting or whatever, the computer has generated the same concerns. In the past century the painter felt threatened by photography, yet we still have painting and I think there has been some speculation in our own time about the computer replacing books or the computer replacing all the art media. I think there is something in human
nature that needs the touch of the hand, the tactile experience, also the manipulation of materials. Which is not to say the computer work and photography is invaluable but it is to emphasize that it has a place in a large variety of things that humans will continue to do. For students, the computer is very attractive because they can appropriate forms from lots of different places and make a beautiful image and they have not had to draw a piece of it. So expect computer work will be very popular in the future and will continue to grow and develop.

I would be very unhappy. It would be very inappropriate for any institution to allow computer work to replace what people do by hand. I hope our educational institutions understand that and put this fabulous tool (laptop) in a proper perspective. I do not want to live in a world without painting and without books. I have no problem living in the computer world. I would like to be able to do it all.

There is one other problem, and that is sometimes at a school like this that is working very hard to integrate the laptop into all aspects of what they do, anytime you have a full curriculum and you add something up front, something else has to go out at the back end. There are just so many seconds in the minute, so many hours in the day. So the hope is that we use our heads about what we put in and what we take out. We must maintain a balance.

One of the things that art education has suffered in this country is art educators have not found a way to evaluate students' work that make them accountable in their art class though they are accountable in their math and English classes. It seems to me art educators can find ways to convince school administrators that the work can be evaluated rationally, logically, and in a non-subjective way. There is good design and not good design.

In the past people have stated they cannot grade the artwork because art is subjective and everything my students do is wonderful. Everything your students do is not wonderful. It may be expressive, but it is not necessarily art. If you are willing to start making some standards (a standard rubric for art/design) about what makes a painting well done or not and what those qualities are and stick to those standards, and then start educating people what they are about. There are standards we just have to be willing to say this is the standard to which I expect my students to rise. If they do not make it, the same thing as the math class. If you cannot show me the proof to that problem, you do not get full credit for your solution of the
problem. If you cannot show me that this painting uses certain elements and principles of design, you have not solved the problem and your work does not rise to the design standard.

I think art education in the United States has been so vague, fuzzy, so unevaluated, people do not realize there are standards. They do not know how we do this. We have not been educated on use of the standards. This is soul moving art rather than some picture the view and say good, ‘I like it.’

Art is still the subject to drop off the back end of the curriculum when something new is added on up front. There is some artistic instinct inside that helps the student to make the selection to bring together elements into a wonderful mode of expression.

One of the things I talk to my students about is the context of art. It is a language and it is a language that human beings had before the written language, written history, and the language children had before they developed a vocabulary or grammar. It seems like it should be thought of as something basic to human nature. Research indicates that using a different part of your brain, lot of talk about educating the whole child and developing everything there is, a good reason for the use of an integrated interdisciplinary curriculum.

Observation: Upper School Art classroom

This teacher is head of the Upper School Department of Art. The class had about 14 students and they were all busy. The group had just returned from an art museum field trip and the assignment was to select the best of the pictures they had seen and try to create a picture of your own in the style of that picture. She was walking around the classroom checking the students work and where she saw a problem she stopped and helped the student resolve it. As for her, her first priority was to hold class and when it was over she was ready to go onto the next thing on her agenda.
Integrated/Interdisciplinary Curriculum

The integrated/interdisciplinary curriculum answers the traditional classroom students’ question, “Why is each discipline educationally necessary?” This age old question was hard to answer in the traditional classroom format. The integrated/interdisciplinary curriculum brings together the various disciplines, by grade, into a single yearlong project (see Fig. 7). The ability to integrate the information acquired from each discipline, via the laptop classroom, into a single project lays that age-old question to rest.
Figure 7. Curriculum comparisons: Traditional & Integrated/Interdisciplinary

This helps students to understand the "whole is greater than the sum of its parts."

This Gestalt theory refers to the quality of property of a whole that emerges out of a pattern of stimulation. In education, "the stress is on productive thinking, reasoning, problem solving, and visual perception" (Reber, 1995, p. 313).
CDS interdisciplinary curriculums

Seventh grade interdisciplinary curriculum

In the seventh grade at CDS, the Middle School assigns a year-long Inquiry Project which is based on a collaboration among the seventh grade teachers from each discipline (see Appendix E). They meet at the beginning of the school year to determine the parameters of the project. The student’s role is to attend their designated classes and develop an Inquiry Project based on what they have been taught in each discipline during the school year (see Appendix A for an interdisciplinary lesson plan: “Make Every Cent Count.”). When the projects are completed at the end of a school year, each seventh grade teacher, by discipline, grades the student’s final project. Then all those grades are added together by a team leader, averaged by the number of grades given and a final grade is assigned.

There is also an interdisciplinary magazine that is created over the course of a year. Each seventh grade student creates a magazine on a topic of his or her choice. Articles are written that relate to each of the student’s academic classes. An interview with a person in authority is included as well as poetry, students artwork, advertising, an attractive cover, and an article about the author (student). The 10 to 15 page magazine is bound and put on display. Each magazine includes geography, science, art, and English. Students use the information from the various disciplines to create their magazine. Where (s)he would normally learn one discipline at a time, here (s)he is able to focus on several disciplines as the articles are compiled for their
magazines. Teachers give one point for product and five points for steps to process, writing about the process, using a survey or graph. Grading is the number of disciplines comprising the interdisciplinary curriculum (IDC) multiplied by 1 and add 5 for total points. For example: the IDC is comprised of art, English, history, computer science which equals 4 points, add another 5 points for steps to process per discipline. If the process steps were incomplete, according to the specific discipline teacher’s rubric, the student would get a reduced number of points per the rubric.

**Seventh grade planning meeting**

The CDS seventh grade teachers meet weekly to discuss the assessment of the students across the learning areas and to find ways to bring effective change. These are planning meetings by which the seventh grade teachers are able to make their interdisciplinary curriculum a living document. Technology has changed the role of the teacher in the classroom. As technology continues to improve, the role of the teacher will continue to change the teaching and learning within the laptop classroom.

**Ninth Grade Humanities Interdisciplinary Curriculum development in progress**

**My first meeting with the IDC development group**

The February 8, 2001 weekly meeting was attended by eight ninth grade teachers who were involved in the development of the ninth grade interdisciplinary curriculum. (Several of these weekly meetings had been held prior to my visiting in this meeting.) In the development of an interdisciplinary curriculum or program, the
first step of the process is to select an organizing center such as a theme, subject, event, issue, or problem, and then brainstorm associations in mapping how each of the disciplines relates or provides ways to investigate this organizing center. Guiding questions across disciplinary in nature are established to guide inquiry and product development with a focus on student performance. Finally activities are designed that will describe what students actually do to experience the organizing center, and how will they will demonstrate what they have learned.

A team of teachers works together to “select an organizing center” or focus of classroom inquiry. Their underlying assumption is that students and teachers will learn together. Using this selected organizing center, teachers meet to discuss how the organizing center will be used to develop essential outcomes. For example, they might ask: How can our organizing center be used to develop critical thinking, creative problem solving, or social consciousness? By expanding on these core concepts, the team generates a list of independent projects and group assignments that will encourage independence and promote responsibility for learning. The assignments should be challenging and some should allow for self-selection by students. All assignments should put learners in authentic adult roles and productive human activities so that students become familiar with the roles authors, investigators, legislators, artists, scientists, and other leaders in the field of the integrated/interdisciplinary curriculum design.
The teachers meet to check their design for variety and diversity in learning activities. They might ask: How will we use student ideas and questions about the theme or topic chosen for the organizing center? Are we using what we know about the principles of brain-based research? Are we designing our activities to respond to multiple intelligences and ways of knowing? Are we providing sufficient opportunities for students to work individually and in small groups? Are our students becoming producers of new knowledge through inquiry and investigations? Are we using student products and performances to supplement our assessment of student progress in learning? The team also asks itself, “How long should this unit run?” Many units are planned for two to four weeks, but student interest often creates a demand for “more time” and “Can we do that again?” Such requests can easily stretch a four week unit to six weeks.

The teachers work collaboratively to develop a list of key student products and performances that will provide evidence of learning over the timeframe of the unit. Then they develop the writing task criteria and the rubrics (rating scale) which will be used to assess student proficiency in completing the task. Both task criteria and rubrics are shared with students (and often planned with students) ahead of time.

The team meets to review work completed so far and draft a graphic to illustrate the major components of their plan. The graph (a web, wheel, tree, or other skeleton on which to display salient features) depicts what teachers teach and what
students do and how they relate to the organizing center. Many teams include at least one culminating activity or event as a synthesis of learning and sometimes the whole grade level shares in this culminating event.

The team takes a deep breath and jumps into the future, confident that their planning will result in improved attention, retention, cognition, and preparation for life, the hallmarks of a great interdisciplinary curriculum. With changing technology, the Interdisciplinary Curriculum must become a living document.

In this interdisciplinary curriculum development group meeting, the chairperson began by conducting follow-ups on past subjects including support decision making, student base assessment issues, student remarks on the last journal entry about how the curriculum is being developed, and curriculum mapping connections for art to English and history not having been found yet. They discussed that when new connections are found, they need to resolve how they can be linked. There must be some linking order when curriculum comes together to close the connections. They agreed to work the plans to bring the disciplines together as more of a collaboration.

An interdisciplinary curriculum mapping, or linking order, was developed by Heidi Hayes Jacobs in 1997 to assist interdisciplinary curriculum development groups in the integration and alignment of their subject assessments, curriculum, and instructions, for matching of subject curriculum themes, topics, issues, and problems for implementation, as well as the critical role of curriculum design. Curriculum mapping aligns curricula, instructions, and assessments, according to Rebecca Crawford Burns (1994) five stage plan for interdisciplinary curriculum development:
parallel disciplines, multidisciplinary, interdisciplinary, integrated, and trans-disciplinary. For more detailed information on Jacobs and Burns visit ASCD web site www.ascd.org/ for Jacobs and AEL web site www.ael.org/ for Burns.

Curriculum integration and design options are expected to directly increase student learning and achievement.

However upon inquiry, it was found that this group did not implement this curriculum process for IDC development. According to the team leader, “they were given four connecting themes and they were just trying to bring their best material in to see how they could make it fit together in ways that would make sense.” At times they appeared to be having a “potpourri problem” (Jacobs, 1997), which occurs when many units become a sampling of knowledge from each discipline. If the subject is Latin America, there will be a bit from history, a bit from English literature, and a bit from the arts. There is no general structure in IDC work.

Another problem they encountered was the “polarity problem” (Jacobs, 1997). This problem arises when the IDC design suffers from lack of continuity and clarity which can cause real tensions to emerge among the CDS teachers or any group of teachers involved in the IDC development.

The history teacher wanted to add Latin America to the history discipline. The group’s response was not to drop off something from the back end of the
curriculum to add something to the front end or the reverse. They felt that adding something new, would cause something already established to be dropped. They planned to discuss the content.

In this meeting the chairperson talked about the teachers scheduling issues for the arts, "that more knowledge was needed up front because they needed to plan for the unknown." The chairperson reminded them that they "want to have art as an authentic part of this curriculum." In this case, no one else (e.g., history teacher) can complete a linking order, or map, for anyone else (e.g., art teacher), otherwise the data would be false. The only professional person who knows what is taught in the classroom is the teacher of the subject, the art teacher and not the history teacher. The chairperson explained "The purpose was to collect authentic data about the classroom and genuine information about what students actually experienced, not what the rest of the group members think they are supposed to be studying."

The chairperson advised the attendees to "Come to the next meeting with what you want to teach and begin to see where you can plug it in, spend time doing it and no longer talk about how to do it, and make everything work together as a single factor." A prime issue is time. There are just so many hours and minutes to a class period so time consideration needs to be done considered first. Regarding the time issue, it is important not to teach for the months but to use the months as a common reference to plot the classroom curriculum. The group members were asked to think about how much time they need to schedule for each class. It was also
structure needs to be established in the meetings. Several of the teachers mentioned that perhaps the allocation of two hours a week for English was not enough time and the art teacher proclaimed that the time allotted for art "was continually being reduced." The lack of continuity in making the interdisciplinary connections and clarity of what is to be taught usually results in scheduling conflicts and breaks.

**Visual tools for development and construction of interdisciplinary curriculum:**

There are curriculum and concept mapping software programs on the market that could help solve the lack of continuity and clarity problems. These tools are used to align the curriculum, assessment, and locate scheduling conflicts and breaks in the curriculum map connections. This software is designed to value the creativity of teachers and provide them with tools to create content, skills, assessment, lesson units, and essential questions. The software helps the teacher develop standards-based curriculum. It is recommended that any school contemplating IDC curriculum development acquire books on IDC development and make them available to their IDC groups the IDC along with mapping software. They will be the best method for avoiding "potpourri" and "polarity" problems. (For information on "potpourri" and "polarity" problems see page 149 of this dissertation or www.ascd.org/jacobs, page 2).

**My second meeting with the group**

My next weekly meeting with the group was on April 20, 2001. One of the IDC teachers' was the chairperson as well as the recording secretary. She opened the
meeting by asking the members if there "was any old business they needed to discuss such as June base assessment, planning a field trip with transportation problems, and if there were any other issues or aspects to be added or changed." Since this group has been having weekly meetings for some months, and I visited only two of them a month or more apart, I did not wish to take up their meeting time asking for clarification of her opening statements.

The chairperson informed the group members that the last four course design journals were different. The chairperson informed reported that some of the students had commented on the different aspects of the interdisciplinary curriculum course. With this input from the students regarding curriculum "changes in that regard, it is hoped that the Curriculum Committee would respond."

In the earlier meeting there was much discussion about the "art/visual art becoming a part of the curriculum." It was agreed by all of the teachers, not just the art teachers, that "it could not be included successfully," but now after many meetings these other teachers are "becoming more concrete." The other group members felt the art teacher member should potentially map out what she wants to do, and the art relationship to what the other IDC members are planning. It was requested that the lesson plans of the other disciplines be worked out, or mapped out, allowing art to be included. The art teacher along with the other teachers were asked by the chairperson "to map the visual connections and send assignments in advance." She also asked the group members "to come with a breakdown of what they want to do so the teachers can get together and begin to make connections"
between subjects.” She advised that the IDC teachers “need to know the order in which to cover different subjects, activities, and roughly how they are to be used during the quarter.” It was also important to know how the teachers taught their subject and performed their activities in the traditional classroom. The chairperson said that if the English teachers would do that, just put them next to each other and see the connections. Hopefully, as the group starts to build the connections they are providing their IDC living document with collaborative lessons for 2002. As the IDC group continue to work out their IDC, what they write and plan for when they create their curriculum map they will be able to say “this is where it will work” and circle the area/place on the chart to denote this is how far this planning session has progressed. The teachers were asked to ‘circle the area’ where repetitions, gaps, meaningful assessment, matches with standards, potential areas for integration, and where timelines are in need of revision. (The teachers manually created their curriculum chart. It might have been done easier, quicker, and more accurately if they had used one of the curriculum mapping software programs.) The IDC members can make use of their past experiences to figure out new ways to make a more collaborative interdisciplinary curriculum for next year.

The chairperson asked the group members “if the curriculum committee had established any sections. If so, how many would be offered for next year.” The history teachers advised that history will have four sections, very flexible and very subject to change. She asked the group members to provide
the number of weeks a teacher would take to teach a subject, topic, or theme because some of the other teachers in the group may not take that much time. History will have to be switched at some point [or placed on the curriculum chart] so as not to delay this switching process as long as possible.

They wondered whether to use this plan as guide for the IDC for that very reason. The advantage to using the IDC plan was that if one teacher leaves the incoming teacher will have some type of blueprint for implementing the course curriculum. It was suggested that they needed to create a formal method for taking minutes next year. The mistakes made this year will be corrective action for the next year. In this way they can improve upon what they have already done.

The history teachers saw a need for a whole section on Latin America. The chairperson and other group members advised "It would be best to try to become competent in something we already have, we are not prepared to drop something on the backend to just add something to the front end." The group was trying to get feedback from the teacher for a unified product and to find out how the teacher intended to integrate the subject into the curriculum. An issue for the group, was how visual literacy would appear in the curriculum. For a discussion on the resolution of this issue see Chapter 6, Issue 6, p. 170.

The chairperson encouraged the teachers to come to the next meeting with two things: a written idea of what to teach and a plan for creating the most profitable instructions package for the students. The subject (discipline) teacher should also specify goals for what (s)he wants to be taught. The chairperson advised them "not
to continue to talk about what they think should be done, or what they think will work, just to get in there and do it; do things in common to create links from one subject to another."

They discussed how many times a week the interdisciplinary curriculum is to be applied and how they might expand the study of art/visual art in this curriculum. The expansion of art in the curriculum became another issue. The resolution to the art issue may be found in Chapter 6, Issue 6, p. 170. The chairperson closed the meeting after she asked them to “give her some idea of what they will do for the third and fourth quarter classes.”

The chairperson then advised the group that she would pass the information from the meeting to the Curriculum Committee. She took the meeting’s notes on her laptop and at the close of the meeting she immediately forwarded the notes to the IDC members and the Curriculum Committee. A copy of the notes were not given to me, principally, because I had it all on tape and notes recorded in my notebook.

**Summary**

In the interviews, the teachers expressed they were glad to be teaching in laptop classrooms. They did not fear any loss of employment because CDS took action to insure that each teacher received the indepth training they needed for this transition. The teachers all agree there has been an improvement in their students’ work, motivation, and school attendance. Success for CDS resulted from a great deal of hard work, strong focus, and strong team effort. I sat in on a couple of the ninth grade integrated/interdisciplinary development meetings. Use of the
integrated/interdisciplinary curriculum (IDC) format was revived in these meetings because of laptop availability and flexibility. The teachers were able, via computer software, to link the compatible information in their lesson plans to one another through the curriculum mapping process. This process assisted teachers in aligning their lesson plans with the co-disciplines. The analysis of the resulting data is recorded in the next chapter.
CHAPTER 6

DATA ANALYSIS

Introduction

In this chapter I will be analyzing the teachers’ responses to the nine questions regarding changes in their teaching practices for the electronic classroom using the laptop computer; and the frequency with which their practice involves more traditional teaching and skill-development activities. Also included in this chapter are resolutions to the major issues that emerged from the teachers’ discussions during the interdisciplinary curriculum development meetings I attended.

The underlined statements are the nine questions posed in the interviews followed by my analysis:

Question 1. How did you respond when you were first informed that you would soon be teaching in a totally new educational format, the laptop classroom?

I found that most of the teachers did not panic, but accepted the inevitable. These teachers saw the advent of laptops in the classroom as a positive adjunct to their teaching environment. They did not see this as a replacement for what they were already doing in their classrooms. To them, laptops were just a tool, a tool to improve the learning environment.
As one teacher stated, "At CDS we are immersed in change." So changes are taken for granted as a part of school. The teachers make necessary adjustments, and continue on with the daily routine. Though several of the teachers are wary of the continued use of laptops for every class, and use it when necessary, one teacher stated they "conform to the students’ use of laptops for taking class notes."

The teachers did not react to the introduction of laptops into the classroom as a pre-emptor of all their traditional teaching practices. Once things were in place and computer training was made available by CDS, the teachers became cognizant of the benefits of merging some traditional practices with their laptop usage. As one teacher stated, "Since the laptop was not going to replace anything, but was there to improve the classroom learning process, they figured out how to use the laptop which made sense of everything else."

Another teacher stated "I am excited about the possibility of every student having his or her own laptop." She felt it would provide equity for all students around the use of technology. A teacher spoke for the majority when she stated "I was neither extremely enthusiastic nor worried. I just thought it would all work out, and it did." CDS administration made sure that each teacher received the necessary training to be able to successfully teach in the laptop classroom. A third teacher who has taught in third world countries, some of the poorest in the world, said she "knew she could teach anywhere in any format without any trouble." There was one teacher who was "terrified" in her words. She was the computer guru for CDS, and when all of the school’s learning tools were to go online, she was
greatly apprehensive. She did not know what the teachers taught and was concerned about how she would be able to program their studies for them to use online.

*Question 2.* Now that you have settled into teaching and learning in the laptop classroom, please compare your teaching experiences in the traditional classroom with those you experienced in the laptop.

The majority of the teachers I interviewed had taught for 10-20 years in the traditional classroom. As I talked with these teachers, I became acutely aware they had little or no desire to recall their earlier years of working in the traditional classroom. After five years of being engaged in laptop teaching, it was as though for them, there had never been a traditional classroom. When I mentioned the traditional classroom they thought I was talking about the traditional computer classroom, before laptops, where classrooms had a couple of desktop computers available or desktop computers were available in a computer lab. With so much technological innovation being pursued in this school, Country Day School staff are focused on what is at hand, what is in the works, and what is on the planning board.

The teachers' consensus was that teaching in the laptop classroom and use of technology was much easier and provided resources for both student and teacher through the use of the Internet. The traditional classroom, minus technology availability, limited both teachers and students to what information was available in a library book, a textbook or teachers' knowledge. In contrast, as one teacher stated,
"The Internet gave quick access to the most recent data and information and just as quickly updated it as changes occurred." Therefore, the most recent data/information is immediately available to both teachers and students.

The teaching experience in the traditional science classroom took more time to lecture and perform actual experiments. The up-to-date data was not readily available as it is in the laptop classroom. In the laptop classroom some experiments are better performed in the traditional mode, but for other experiments, (i.e., use of the online Science Notebook, SNB – science) helps students’ perform experiments and stay current with their science projects. The math teacher wants her students to learn how to manually work out their math problems with pencil and paper just as they did in the traditional classroom. As she stated in her interview, “They become too dependent on their computers to solve, calculate, their problems. When the computer is down they do not know how to use pencil and paper to calculate their math assignments.”

The science teacher has much the same attitude. She believes that hands-on experimentation must come before online experimentation because the tactile experience is more profitable to the student. Both types of classroom teaching, traditional and computer, are combined to provide information for a well-rounded education at CDS. One thing the teachers and students do like about the laptop classroom is the ability to use e-mail to send and receive assignments.

The teachers did not react to the introduction of laptops into the classroom as a pre-emptor of all their traditional teaching practices. Once things were in place and
computer training was made available by CDS, the teachers became cognizant of
the benefits of merging some traditional practices with their laptop usage. As one
teacher stated, “Since the laptop was not going to replace anything, but was there to
improve the classroom learning process, they figured out how to use the laptop
which made sense of everything else.”

Each teacher felt as one teacher stated, “Once we were adjusted to the laptop
environment, teaching would become easier for them and learning would be easier
for the students.” Searching the Internet has added the most current, up-to-date,
information to teachers’ repertoire and allowed them to maintain up-to-date
information for their students. The teachers reported that teaching has gotten easier
every year and the resources more plentiful through quicker access. The teachers
agreed with this teacher’s sentiment,

When the school obtained its first computers, desktops, they were
ominous and hard to use. The teachers were still habituated to pencil
and paper, chalk and the blackboard. When the few computers in the
lab were to be used, a teacher had to reserve the lab and then struggle
with complicated interfaces to get online, wasting valuable teaching
time. Now with laptops, everyone can get on the Internet and make
searches for relevant data together.

Question 3. What changes did you make to adapt your original lesson plans to an
electronic, laptop, classroom?

The majority of the teachers did not see themselves “As having to adapt their
original lesson plans for laptop use in the classroom. The same kind of information
is imparted, but probably much more current, and the same objectives are just
adapted to a different teaching style.” The art, science, and math teachers maintain
some traditional classroom practices, meaning use of "pencil and paper, chalk and blackboard, or overhead projector in their classroom." The art teachers still see the need for students to have a tactile experience. The math teachers want their students to know how to mentally figure out in their heads the logistics of doing experiments, or calculations and problems to reduce the reliance of the students on their laptops to solve their problems.

Several of the teachers expressed agreement with the statement,

Laptops have helped raise the students' self-esteem in providing quality work and products. The penmanship of some of the students was so bad they resisted putting much effort into completing assignments which made it hard for the teacher to grade.

For some of the teacher's websites, no lesson plan changes were required; for others, changes were made so their plans could be loaded onto their websites. It was not so much the lesson plans that needed to change, as their teaching styles. Teaching the subject could still be done using the original lesson plan concept, but the style had to undergo changes. It has been stated that "The teacher is now a facilitator more than a teacher."

However, some teachers at CDS saw themselves in both roles. As one teacher explained "their lesson plans are not prepared in as formal a format as those used in the public schools." For lesson plans to be placed on a teacher's website, assistance is provided by the Department of Technology. There are online lesson plans that a teacher may download and then make them applicable to her teaching.
style. There are three major sites from which any teacher may obtain the online lesson plans: 1) from a museum, 2) from another school, and 3) from CDS. (see Appendix A)

**Question 4.** What programs or system innovations have you suggested for use in the electronic classroom to enhance your teaching and the students’ learning?

Though several teachers informed me that they had submitted suggested innovations to the Department of Technology, not one teacher could name the innovation. The computer technology person advised me that, “Some of the teachers had submitted suggestions and or innovations for updating their programs to facilitate their teaching and the students’ learning.” She, however, did not give me any specifics.

**Question 5.** How has computer technology affected art education and interdisciplinary integration at the Country Day School?

This question was prepared principally for the art education teachers and other teachers who were involved in the ninth grade humanities interdisciplinary curriculum development (IDC).

With art being a part of the IDC curriculum, the other disciplines will begin to bring art thought into their teaching arena, and it is there, overtime, these other disciplines will recognize the benefits of having art/visual art connected to their curriculum. Art as an active IDC member may do more to bring art to a new level
of teaching intensity. As one of the teachers stated, art is a language and it is a language that human beings had before the written language, written history, and the language children had before they developed a vocabulary or grammar.

A problem the art/visual art teachers see with art education not being given more credit or a higher level of teaching is art educators have not found a way to evaluate students' work that make them accountable in their art classes like they are in math, history, or English classes. She believes that art educators can find ways to convince school administrators that artwork can be evaluated rationally, logically, and in a non-subjective way. With the laptop classrooms, there may be a way. The technological teaching and assessment tool, the rubric, may well be the answer to evaluating artwork in a rational and logical way, beginning with the visual art of digital imagery, photography, and multimedia (see Appendix B).

Develop a standard rubric for art/design that lists the standards about what criteria makes a painting well done or not and what those qualities are and follow these standards, and then start educating people what those standards are about. If the students cannot show they have met those standards in the use of certain elements of principles of design, then their work does not rise to the art/design standards set forth in the rubric and the student does not get full credit for their completed product.

The interdisciplinary curriculum is where the student is most likely to come face to face with more complex academic work. At CDS, the teachers of the integrated
interdisciplinary curriculum see, "Laptop students readily engage in
group-collaborative work, problem solving and critical thinking, applying critical
thinking skills more readily and becoming engaged in addressing the nature of the
problem, gathering and evaluating evidence related to perspectives on the issues
and developing a strategy for supporting their own position on the matter." The
teachers say their students showed greater evidence of applying higher order
thinking skills to the big-picture and strategic issues rather than to information
gathering and procedural issues.

My observation during the personal interviews was the teachers took it as an
opportunity to talk about experiences, examine opinions about what works well,
voice concerns, and make suggestions for effectively carrying out a project-base unit
of study. The suggestions for a unit of study was played out in the group meetings
during the development of the ninth grade humanities interdisciplinary curriculum.
The teachers' interview analyses indicate there was a positive influence of online
use. Also during my classroom observations I saw positive effects of students going
online and making changes in their own learning behavior.

Question 6. How has the electronic classroom lesson plans, artifacts, and outcomes
affected the educational environment?

Teachers and students take on different roles when students have laptops.
Teachers agree that the electronic, laptop, classroom has a positive affect on
students. Several of the teachers speaking about their students have witnessed, as
one teacher put it, "improvement in their critical thinking, problem-solving abilities,
and social interaction; it enhanced their understanding and facilitated learning. Much of this was accomplished through group projects and class presentations."

*Question 7. Do the outcomes of the electronic (laptop) classroom reflect students' understanding of the teacher's expectations for the assignment?*

The electronic environment encourages teachers and students to go beyond their expectations. The culture studies teacher said she was "Amazed at how the students went beyond my assignment expectations. Their projects contained supporting artwork as well as extra information to clarify their writing, which was not called for by the assignments." The Internet has been beneficial to both teachers and students, teachers in preparing their assignments and students in fulfilling those assignments. Students become motivated to attend school, to do complex work assignments, and to take pride in their work. Anyone who spends any time at this school realizes how motivated these children are to attend school and to diligently work to complete complex assignments.

Their magazines, year-long inquiry projects, are displayed throughout the school, not the classroom, where whoever comes in may peruse, touch or admire the outstanding work of these Middle and Upper School children. They are rewarded for work well done, simply by having it displayed in the school. (see Appendix E) Learning becomes an experience rather than a chore.

In my observations, I was amazed at how well these students articulated the concepts and expanded on details of their assignments. Outcomes of the laptop classroom exceed the teachers' expectations of the students' responses to their
assignments. One teacher reported the sentiments of all the teachers when she said, “Students regularly go beyond what the assignment calls for and enhance it by adding their own knowledge, skills, and abilities to improve the product.” This illustrates the motivational power of the electronic educational environment. They not only understand the teacher’s expectations for an assignment, but they improve on them. A teacher expressed the feelings of the faculty when she said, “how pleased they were with the improvements they received from the students on their assignment submissions.”

Question 8. How has the acquisition of computer technology and training enhanced or hampered your effectiveness as a teacher?

Laptops lead to more student writing and writing of a higher quality. Teachers say students’ “writing has improved.” Where once teachers had a hard time deciphering their students written work, the use of “laptops has made it easier to read and grade the students’ assignments.”

It was found that students also worked well as a team to complete their assignments. Teachers realized, as one put it, that “Students working in small groups were capable of self-reflection on their own work quality in writing or discussion. They wrote essays explaining their thinking or reasoning for their completed assignments.” It was also found that when students “worked as a team to complete assignments, students became collaborators.” The teachers validated a well-known fact, that students learn better from their peers when they share ideas and thoughts about the outcomes of their assignments.
A teacher informed me that the, "Students decide on procedures for solving problems and discuss their different procedures and results in the development of their assignments." As I observed the science class, the students conducted hands-on or laboratory activities. Teachers use the software as it was reported, to "enable students to communicate with other people and to produce products for an audience."

The teachers at CDS created objectives for student use of computers. Computers help to facilitate complex academic work by students so "They become more accomplished at integrating computer technology into their own professional lives." The teachers say their students showed greater evidence of applying higher order thinking skills to the big-picture and strategic issues rather than to information gathering and procedural issues.

The teachers were in agreement with a teacher who reported "computer technology and training has enhanced their effectiveness as teachers and the students learning capability." One benefit that has contributed to enhanced teaching effectiveness was the "growing positive interaction between students and teachers in assisting one another with technology problems." The teachers’ consensus as reported was "this is not like going to a classroom to hear a lecture and take notes. In the laptop classroom, the barriers between student and teacher that were so prevalent in the traditional classroom, have been greatly diminished."
Question 9. How do you prepare a student for the standardized/proficiency tests within the electronic (laptop) classroom?

Each teacher I interviewed answered this question the same way “I do not teach to a proficiency test.” I was told that the proficiency test is given “only at the ninth grade level and those teachers do not teach to the test. If a student fails any portion of the test, that student may be promoted to the next grade but will be required to get tutoring in the failed area and then retake that portion of the test. If they pass it they get to graduate with their graduation class.”

Additional findings regarding group issue resolutions

When I attended the CDS ninth grade interdisciplinary curriculum group meetings they were still in the planning and development stages. These stages were akin to those by Burns (1997) in her book titled “Dissolving the Boundaries.” The leader of the group informed me that they would get the curriculum finished in time for the opening of the fall semester. The group worked through out the summer months, in-service, to get the best curriculum possible. The curriculum is now completed to the point where it can be put in place when school reopens. This is a living document and will continue to be reviewed for necessary changes. I contacted the group leader in July 2001 and again in August 2001, for additional information, and posed the following questions about their resolutions of some of the issues raised in the meetings I attended to find out how they resolved them.
Issue 1: Does CDS define Interdisciplinary Curriculum as an approach to learning that stresses connections and relationships rather than delineations within and across disciplines and between academic and vocational programs?

The answer was yes. "Our purpose is to have students make connections across disciplines, and between their lives and those of the people they are studying."

Issue 2: Does CDS see interdisciplinary curricula as a tool for building bridges instead of boundaries between specific bodies of knowledge?

The answer was yes.

Issue 3: Integrated curriculum is concept driven and focuses on performance expectations that describe the generic knowledge, skills, and curriculum habits of mind that students are expected to attain. Answer yes or no. If the answer is no, what is CDS definition of interdisciplinary curriculum.

The answer again was yes.

Issue 4: Was an Integrated Interdisciplinary Curriculum and mapping model used (e.g., Heidi Hayes Jacobs, Rebecca Crawford Burns)?

The answer was no. "A committee started putting this together on the direction of our head of school in 1998. The committee included faculty and some administrators. They gave us four connecting themes and told us the general time period we were to cover. Then the teachers spent the summer of 2000 mapping out how we were going to implement this curriculum. We had one teacher who had..."
studied interdisciplinary education as part of his teaching degree, but otherwise, we were all just trying to bring our best material in and see how we could fit it together in ways that would make sense to the teachers and the students.”

Issue 5: Did you use curriculum mapping/web template linking software (e.g., Curriculum Compass, Maxamine Web Analyst) to create your chart? If so, what is the name of the software; or did the CDS technology department develop some software for this project.

The answer was no. “We did not use software. We do use Inspiration, a kind of software, to help the students make the links though in the classroom.” For a tutorial on this software logon to www.inspiration.com/. This software is designed for concept mapping within a discipline. Curriculum mapping software is designed to dissolve boundaries between and across disciplines.

Issue 6: The second time I sat in one of the group’s meetings, the history teachers talked about adding Latin America to the history discipline and that art was undergoing continued reduction. Were these two issues worked out successfully? If so, how?

The resolution was, “We are adding Latin America by taking out Rome. We are also shortening our study of Modern China. This was a decision made primarily by the history teachers, but we let everyone listen to our deliberations so they could see what our issues were. The question of art being squeezed out has been addressed, but we all recognize that we are constrained by the fact that the administration has
given art only a half credit and half the time as English and history. This makes
equal time impossible, so it always seems that art is not taught on the same level of
intensity as the other two subjects. We have all agreed that the English and history
teachers will be responsible for bringing more visual and dramatic arts into their
curricula next year, to build more bridges to the arts curriculum, since the art people
do not have time to teach their material and (help the other subject disciplines) build
bridges to the art curriculum.”

A reason art teachers have trouble building bridges (connections) to the other
disciplines in the interdisciplinary curriculum is due to their time constraint. Usually,
the high intensity level disciplines when taught individually, (e.g., English, history,
math and science) are reluctant to avail themselves of the viability of art to their
curriculum. To enhance art for use with the other subject disciplines, the
interdisciplinary curriculum can require them to establish connections (building
bridges) to the art curriculum, this is called collaboration. It is one way of getting
the other subject discipline teachers involved in the use of art and their acceptance
of art becoming a viable part of their discipline.

**Issue 7:** In the 7th grade interdisciplinary curriculum, the outcome on the
students' Inquiry Project determines their passing/failing grade. What is the
expected outcome for the 9th grade interdisciplinary curriculum?

The answer to the expected outcomes for the 9th grade interdisciplinary
curriculum is successful completion of the course (a passing grade). “We are
teaching critical thinking, visual literacy, improvisation skills, writing and vocabulary
skills, and the content of all three disciplines within a technology-intensive environment that requires students to master web creation and maintenance."

(Since the group leader refers to the interdisciplinary curriculum as a \textit{course} and it is comprised of four subjects, my question to the leader was "if the student fails one of the subjects, have they failed the \textit{course}?"
The answer to this question was, "No. If the student failed in one subject they would not be considered to have failed the other three, the \textit{course}.")

Based on the foregoing set of questions and answers, other pertinent questions arose. In late August 2001, I forwarded by e-mail, the additional questions to the team leader. Her answers follow my underlined questions.

\textbf{How committed and prepared were your staff members to implement changes in curriculum, instructions, and assessment?}

Staff was ordered by the department chair who picked us to do the integration of the three disciplines. We had a lot of latitude as to what kind of changes we made in curriculum, instruction, and assessment, but we tried to come to consensus on a lot of it, which made for a lot of creative exchange of ideas, which was positive.

\textbf{What conditions were conducive to implementing interdisciplinary team educational instruction?} "Conditions conducive: a lot of free time (one shared free period a day) for teachers to work together. Independent curriculum development days over the summer that we were paid for. In-services."
How did the group build commitment to curriculum integration and the inevitable changes in schooling that it brings?

We were ordered to do it, so we did it. Others are staff who is not on our team expressed some support, and some caution that we are the "next big thing" and it might be forced on them as well.

Is traditional teaching still in place, subject-based, or is the teaching concept-based being applied through all the involved disciplines? "Teaching is a combination of both. We are using concepts to teach subjects, and we teach the subjects, from which one can develop the concepts."

Can you identify any benefits and challenges of integration to the teachers and the students? "Benefits to teachers are: increased collegiality, creativity, and lifelong learning. Benefits to students are obvious: the connections!"

Has a plan been established for how the school might best proceed with making the curriculum integration document a living document, to cope with continuing changes? "Yes, within the Humanities program we have done this, but not in the school."

Summary to the major questions

- To summarize the answer to Question 1, the teachers’ responses emphasized technology, provided equity for all the students, and empowered the disabled and disenfranchised students. Teachers were not upset about having to work in an electronic classroom but responded appropriately since CDS was a school immersed in change.
• In answering Question 2 the teachers agreed that teaching and learning in the laptop classroom was easier and more profitable for both the teachers and their students. Both were overjoyed at the number of resources available to them over the Internet. However, the teachers agreed that some of the traditional classroom teaching methods should be retained, such as using pencil and paper to make sure students knew how to compute their math problems and do actual experiments rather than rely on the online math and science web sites for answers.

• Responses to Question 3 showed the majority of the teachers found it was unnecessary to adapt their lesson plans for laptop use in the classroom. The major change they adopted was in their teaching style. Teachers who were once seen as only “sages on a stage” are now acting more as “guides on the side” (facilitators).

• Responses to Question 4 regarding teachers submitting suggestions to the Department of Technology for software improvement and innovation implementation noted several teachers did submit suggestions and innovations to improve the learning environment of the classroom. However, not one teacher could give me any specifics about what they submitted. The various submissions for program innovations and improvements being implemented, rests in the hands of the Department of Technology who consider the cost to implement and consideration of what was already in place.

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• To summarize Question 5, responses regarding art education and interdisciplinary curriculum, the development of CDS ninth grade IDC has art/visual art as a major factor. The co-disciplines established links (connections) to the art curriculum and art/visual art established links to the co-disciplines curriculum. The IDC benefits for the teachers included increased collegiality and creativity.

• Responses to Question 6, showed the laptop classroom has had a phenomenal impact on both teaching and learning, lesson plans, artifacts, and outcomes in the educational environment. Students have shown improvement in their critical thinking, problem solving skills, and social interaction and have enhanced their understanding and facilitated learning.

• Teacher responses to Question 7, revealed student outcomes were over and beyond the teachers’ expectations in completion of complex assignments; learning became an experience rather than a chore.

• In answering Question 8, teachers agreed the laptop classroom has enhanced their effectiveness as a teacher. They reiterated that laptops in the classroom had made it easier to teach and for students to learn.

• All of the non-ninth grade teachers responses to Question 9 regarding administering proficiency tests said "this test is given only in the ninth grade."
Summary

The teachers at CDS reflect time, work, and thought. They wish to increase the capability of the teachers to provide students with more coherent and focused experiences throughout their school experiences. In the final chapter, there is an overview of the impact on teaching and learning, implications for the field of art education, and suggestions for further research.
CHAPTER 7

Introduction

In this chapter I will provide a brief overview of the findings on the impact of the interdisciplinary curriculum and how the laptop classroom has impacted teaching and learning at CDS as expressed by teachers' interviews and observations.

Brief Overview of Findings

Through the teacher interviews, I found they enjoyed using their laptops to go online and gather information, organize these findings and include them in their lesson plans, present information, and develop multimedia projects using text, images, video, and audio. It was found that the more teachers worked on the web, the more they added information, text, images, videos, and audio the more links and connections they were able to find. They were prepared to guide their students in locating the appropriate Web sites to retrieve and download information for their students' complete assignments, projects, and presentations. These teachers are in agreement that technology in their classrooms have enhanced their effectiveness as teachers and has had a positive affect on their educational environment.
In the classes I observed, the students did not seem to have any problems using their laptops to go online, take notes, or accomplish any other data entry or retrieval need. Online access was going on in the hallways between classes and during lunch breaks, the students were busy retrieving and downloading information for either the homework assignment from the last class or getting information ready for the next class. The students seem to enjoy gathering information just as much as the teachers.

Interdisciplinary curriculum

The interdisciplinary curriculum has made the classroom more teacher-friendly with the dispensing of many barriers experienced in the traditional classroom. The teachers who were part of the ninth grade humanities interdisciplinary curriculum began organizing their unit plans for the upcoming school year. They charted/mapped out their curriculum by hand. They did not use any of the commercial mapping and interdisciplinary curriculum development software. The software would have helped the teachers to easily and quickly locate the communication gaps and repetitions among the various themes they were considering for the ninth grade humanities interdisciplinary curriculum. The thematic units could have been easily connected with what they had been thinking about, reading, seeing, and hearing. The art/visual art teachers’ contribution to the interdisciplinary curriculum through the use of computers and digital cameras have provided creative images to enhance each of the disciplines represented in the
curriculum. The CDS teachers of art/visual art are very much involved in making art a viable contender in the interdisciplinary curriculum. These teachers push to get as much time and visibility for the art curriculum connections to the other disciplines (i.e., English, history, art/visual art and computer science).

The art teachers along with all the other involved disciplines of the IDC are prepared to teach conceptually and offer authentic contributions to the curriculum. Authenticity for art was espoused in the second IDC group meeting, no argument there. However, the art IDC teacher argued for more time to be able to be competitive with the other disciplines establishing links or connections across the disciplines. This became an issue.

These meetings continued throughout the summer of 2001. In the latter part of the summer, I contacted the IDC team leader and asked her how they intended for the IDC disciplines to be taught, would it be subject-based or concept-based. I also inquired whether the art time issue had been resolved. Her reply to the teaching question was CDS teachers are teaching a combination of both, part concept-based and part subject-based. From this format the teachers expect the students' to develop their concepts. The art teachers along with the other IDC disciplines are prepared to teach both concept-based and subject-based, and to offer authentic contributions to the IDC curriculum.

On the second question, the IDC team leader advised the resolution to the art time issue was resolved by getting the other disciplines to make links or connections to the art curriculum. Since the other teachers of the humanities interdisciplinary
curriculum have agreed to build bridges (connections) to the art curriculum, as well as the art curriculum building bridges to the companion disciplines, art can begin to work its way into becoming a major subject, over time, as it takes its place along side the core disciplines in the development of the interdisciplinary curriculum.

**Impact on teaching**

Through personal interviews and classroom observations, laptop usage has shown to have a positive effect on teaching and learning. Laptop teachers report that their practice has changed significantly since the implementation of the laptop program. Teachers allow students to select their own research areas and the students explore these topics on their own. Laptop teachers at CDS report a variety of role changes in their classrooms since the implementation of the laptop program. According to them the students are now working with other students more frequently than before, they have become collaborators. A significant change that has occurred is how often teachers allow themselves to be taught by their students. This has been beneficial to the student who gets to experience being the expert. They come to understand the teacher's role and come to understand the responsibility that comes with having knowledge.

The teachers also report a variety of changes in their classroom activity structure. They are doing more project-based work, students are writing more often, and there is a greater inclusion of imagery. The teachers allow simultaneous multiple activities and they employ at least one element of authentic assessment – assessing students based on process, and products. Teachers have made significant
changes in the frequency with which they employ computers for collaborative student projects, both within and outside of school. The students are publishing their own web pages, and using content-specific applications for drill and practice frequently (e.g., Science/Scientific Notebooks (SNBs)).

When we look at the interviews with the laptop teachers, an interesting pattern emerges. The reasons for change often have to do with opportunities for learning and changes in their attitudes or understanding—that is, changes that are more internal in nature. Teachers indicated computers played a role in the changes they made within particular classroom practices.

Becker’s (2000) descriptive paragraph of constructivist learning adherents applies to the CCDS teachers.

Teachers who subscribe to the constructivist learning theory are more motivated to master new technologies and more easily see the utility of computers in their work; that accomplishment in using technology in student lessons and in class participation motivates teachers into sharing with peers their new skills, and in a complementary way, that teachers seeking to learn to exploit computers in their work also seek out professional contacts as a means of attaining those skills. (p. 2)

Impact on learning

As with every technology, the critical question is the impact that the change can have on student learning. A more difficult question is how to measure the learning that is taking place. There are three areas of student learning that are being impacted by technology: 1) writing, 2) laptop project influence on standardizing assessments, and 3) measurements of student learning strategies.
Some of the teachers saw “that with laptops students take more pride in their work and they spend more time on their writing which results in a more polished and professional-looking product.” Through my observations, the projects that generated the strongest expressions of enthusiasm in the students were those that combined hardware, software, graphics/artwork, Internet inquiry, use of databases, and some kind of presentation to give them the opportunity to use their acquired knowledge.

The findings show that the humanities interdisciplinary curriculum program has a significant effect on writing and content knowledge. According to the teachers the largest gains were shown in conceptual understanding. It was reported:

That students in the humanities program stay in school longer, work harder and like school better. The expectations are higher in this interdisciplinary program, and the students are involved in more complex discussions that require them to make connections between content areas and the real world.

Another teacher reminded me that:

The same expectations hold true for the students’ written work, as students may be asked to write an essay that includes a discussion of the beliefs of more than one culture and the way those beliefs are influenced by cultural factors and values. The students are to include perspectives from art history, literature, and social institutions and make links to their own lives.

Significance of the study

Munoz (1993) understood that if programs were to be cut, art would surely feel the axe long before science or math. Science and math are important to a student’s education, but so is art. The illustrations appearing in science, history, and math
books or online bring students to a better comprehension of the printed word.

According to Heise and Grandgenett (1996), the Internet may well break down the walls of the continuous communication between art teachers and students in all nations.

My research has provided educators with real life data detailing the advantages and challenges of the electronic educational format. It revealed how teaching and learning requirements applied to the traditional classroom cannot be similarly applied to the electronic classroom, and showed that an electronic education based on traditional education concepts provide students with the best of both educational methods.

Implications for the field of art education.

Implications for field of art education via the electronic classroom should include (a) providing adequate time for the teachers and students to explore and learn the new technology and software, (b) offering Internet training which focuses on the art curriculum, (c) hiring experienced electronic classroom teachers from all disciplines who share examples of innovative use of the Internet and the software with traditional classroom teachers who are preparing to crossover to the electronic classroom, (d) encouraging teachers, where necessary, to use existing paradigms of teaching and learning, (e) encouraging teachers to experiment with technological applications and find new ways to use/improve technology, (f) how time is used in the school, and (g) integrate art/visual art into the core curriculum as the fourth R through the development of the interdisciplinary curriculum.
CDS may have the answer to upgrading art to a full credit in their ninth grade humanities interdisciplinary curriculum, when the group members agreed to bring more visual arts into their curricula and pledged to build more bridges to the arts curriculum because the art/visual arts teachers or not allotted equal time with the other disciplines to make the connections and teach their material. Since art, at this point in time, is a mere half a credit and the teaching intensity level is not on a par with the other core disciplines, these bridges being built to the art curriculum by the other disciplines may raise the cognizance level of the CCDS teachers and educators that will bring art/visual culture to a higher level of teaching intensity, and given equal time/credit in the course of the study. One reason for art being half a credit and it time can be given to another discipline is it is often heard that art is subjective and cannot be graded objectively as is math, science, history. The remedy is the rubric. The new teaching and assessment tool that can be used to write standards for the principals and elements are for art. Standards exist for the other disciplines now is the time to use the rubric and develop standards for art, visual art.

Suggestions for Further Research

Research should be made on the CDS interdisciplinary curriculums to see if bridges were built between the various disciplines and art/visual art discipline, and whether or not it was advantageous for the overall study. Further research should be conducted at CDS to learn how this school integrated the newest technology, video conferencing for learning with laptops, videostreaming (Broadband),
webcasting, digital publishing, and online tutorials, for professional development into the school systems and programs. Further research should also be done to observe the impact of the new technology on their teachers, students, and the various curriculums. Look at CDS art education courses and see how art is working in the interdisciplinary curriculum.

Summary

To summarize a brief overview of my findings, the findings support the positive effects of the laptop classroom at CDS. They showed:

- Laptop usage in the classroom encouraged depth and breadth in student learning and teacher effectiveness.
- Students used their laptops for gathering information, organizing and presenting information.

My findings in the use of the integrated/interdisciplinary curriculum (IDC) were:

- IDC made the classroom teacher-friendly.
- IDC promoted collegiality among the IDC teachers and positive attitudes in the students.
- IDC assisted students in becoming collaborators as they worked in groups and helped them apply their skills.
- An IDC knowledge base led to faster retrieval of information for both teachers and students.
- IDC provided for more quality time for curriculum exploration.
• IDC development uses thematic units to connect (link) the subject disciplines into the IDC curriculum. Teachers and students participated together in the development of the IDC.

Findings regarding impact on teaching were

• Teachers, using laptops to access the web, were able to acquire more links and connections to a wider array of information for their lesson plans.

• Teachers were doing more project-based work, students are writing more often, and there is a greater inclusion of imagery. The visual art teachers are critically looking at the imagery being presented by their students. Their input is the reason art is being included in the ninth grade humanities interdisciplinary curriculum.

• Teachers who use laptops in their classroom are more motivated to master new technology.

Findings regarding impact on learning

• According to the teachers’ responses and the student artifacts, it appears the three areas of student learning that may be impacted by the laptops were writing, meeting the rubric standards or assessments, and student learning strategies.

• In my observations the students were enthusiastic in the development of their product and took more pride in their ability to present professional-looking work.
• Students showed enthusiasm when given the opportunity to share their acquired knowledge.

• Students' largest gains were apparent in their conceptual understanding.

Findings for the field of art education were

• IDC promoted higher visibility for art/visual art as a viable asset in the integrated/interdisciplinary curriculum.

• IDC permitted art/visual art discipline to make connections to the other humanities disciplines.

• IDC, in this case, called for the other humanities disciplines to make their own connections (links) to the art/visual art curriculum. By doing so, these co-disciplines would gain insight into the important role that art/visual art plays in a student’s ability to enhance and clarify their writing, improve their critical thinking, and problem-solving in completing all their assignments.

Something about seeing is believing. The co-disciplines are at this stage as they begin to make their own connections to the art curriculum.

The significance of this study rested in the exploration of moving from traditional classrooms to electronic classrooms; the impact on teaching and learning via integration of the Internet over the five year span of the laptop classroom; and the effectiveness and enhancement of teaching and motivation for learning via the integrated/interdisciplinary curricula.
A suggestion for further research would be to repeat this study at CDS within the next three to four years to study how well CDS incorporated their newest technology, the outcome of their integrated/interdisciplinary curricula, and whether art/visual art curriculum was being used more effectively in these curricula. One could also observe whether continuing to offer computer classes for significant others, parents and grandparents of the students, had progressed and whether these classes proved beneficial to those relatives who took advantage of the opportunity to become equally computer literate with their children.

Conclusion

Engaging students in real-world problem solving and critical thinking as they acquire the skills and knowledge needed for success in work and life is important to the middle and upper level students. Helping students see the connections between school and life can be accomplished by an integrated/interdisciplinary curriculum rooted in real-world topics that are exciting and timely. Learning can be further enhanced through a performance orientation that allows students to practice and be assessed on important work and life skills. This approach represents a blending of curricular and instructional practices that research has shown increase students engagement and learning. Through a process called curriculum mapping, a tool used by IDC teachers for long-range planning, short-term preparation, and promoting clear communication, allows IDC teachers to work together to address the whole student experience: Teachers are better able to build upon student learning and expand what students are doing when they are informed about what
is happening in other grade levels and other classrooms. Teachers are able to connect assignments and projects across classrooms and across disciplines and content areas, creating a more coherent integrated, and meaningful experience for the student. Using the new IDC format, art curriculum has been integrated at a higher level of participation in the overall curriculum.

Summary

Regardless of which classroom format is utilized, traditional or laptop format or a combination of both, with the integrated/interdisciplinary curriculum, either structural model should include appropriate disciplinary knowledge, address the needs of learners, and reflect the real world.
APPENDIX A

Lesson Plans

Online from a museum........Page 194

Online from another school...Page 198

CCDS Visual Art: "Scavenger Hunt Assignment"............Page 205

Interdisciplinary Curriculum: "Making Every Cent Count"...Page 218

Interdisciplinary Curriculum Design Template...............Page 224
LESSON PLAN #2

COLONIAL AMERICA
1650s TO 1760s

Objectives:

Learn to read the visual clues in colonial portraits for cultural and historical information.

Slides:

- Slide #1 *The Mason Children*, 1670, Attributed to the Freake-Gibbs Painter
- Slide #4 *Grizzell Eastwick Aphorp*, 1748, Robert Feke
- Slide #5 *Mary Turner Sargent*, 1763, John Singleton Copley
- Slide #7 *Mordecai Gist*, ca. 1774, Charles Willson Peale

Discussion:

During the period between the Pilgrims' landing at Plymouth Rock in 1620 and the conclusion of the Revolutionary War in 1783, portraiture was the most prevalent type of painting in the American colonies. The colonists looked to England for style in painting, fashion, and architecture. The colonists' experiences in the new country in
relation to their prosperity, social status, and cultural identity can be identified in the works from this period.

Using the information from Introduction, Discussion, and Looking Closely review the slides above and discuss with the students which details of the subjects' lives can be seen in their portraits. How can we tell that the Mason children are upper class Puritans? Point out the various objects that the artist has placed in the Mason children's hands and ask the students what these objects tell us about them. Why might there be a boat in the background of the portrait of Mordecai Gist? What do the fancy dresses of Grizzell Apthorp and Mary Sargent tell us about their life-styles? Note how these formal clothes differ from formal wear for children and adults today. Ask your students how often they dress up and for what occasions. Is there anything in contemporary fashion that is similar to a corset or a hoop skirt? What does it say about our present culture that we wear formal clothes less often, that they are usually more comfortable than in the past, and that women's formal clothing is still less comfortable than men's formal clothing?

Activity 1:

Ask your students to think about what objects, clothing, background, etc. they would like included in a formal portrait of themselves. Ask them to imagine that this portrait will be seen by all of their family members and friends as well as people 100 years in the future. Students can make a verbal or written list, or they can make a collage or drawing. What do the objects they chose say about them? Now ask your students to think about objects, clothing, and backgrounds they would not want included in this portrait; for example, a test on which they received a poor grade, ripped play clothes, or a dirty MUNI bus in the background. (Ask students to think about this list; do not ask them to write it down or say it out loud.) Have students realize that both lists
represent parts of their lives. In the same way that we may not want to include unpleasant things in our formal portraits, people in the past did not want to include certain things in their portraits. When we look at older paintings in a museum, we generally see only the good side of life represented. To get a well-rounded picture of a place and time, we also have to read and study a variety of historical sources.

Activity 2:

Ask students to imagine that they are one of the characters in these portraits, and as this person, have them write an imaginary letter to a relative. The letter should be dated the same year as the portrait. Ask your students to research this time period and to look for visual clues in the portrait. What might this person say? Then ask students to write a letter to a relative from a person at the same time period who did not have enough money to commission a portrait of themselves. Students might choose to write a letter from an American Indian, an African-American, an Asian immigrant, or an indentured servant; what would these people have to say?

Terms:

■ sitter: a person who poses for a portrait.

Suggested Reading:


LESSON PLAN

Theresa Quiroga
June 27, 2000

Grade Level: 8th grade
Subject: Science

Concept: Identifying food substances containing starch during hands on lab experiment using an indicator.

CA Standards:
*6b- Students know that living organisms are made of molecules consisting largely of carbon, hydrogen, nitrogen, oxygen, phosphorus, and sulfur.

*6c- Students know that living organisms have many different kinds of molecules, including small ones, such as water and salt, and very large ones, such as carbohydrates, fats, proteins, and NA.

*9a,b,c- Investigating and experimentation

Objective: Students will understand what indicators do.
Students will conduct experiment and evaluate results
Students will identify foods containing starches
Students will understand the body's need for glucose

Vocabulary: nutrients, carbohydrate, starch, glucose, energy, fat, protein, indicator

Materials: computer
    food samples
    dropper with iodine

Technology: Computer
    Internet

Procedure:
1. Read introduction prior to starting
2. Teacher will explain lab and directions

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3. Working in groups students will collect food sample in container
4. Drop two drops of iodine on food sample and record any color changes indicating starch
5. Clean up
6. As a group students will answer questions regarding results
7. Working together students will plan a high starch diet including breakfast, lunch, and dinner
8. Click on internet site and answer questions from article

Assessment: Students will be assessed on lab write up.
Purpose: To discover which foods contain starch, one of the six nutrients and to design a high starch diet.

Background: Many of the foods that we eat have starch in them. You are going to use an indicator to determine if different foods have starch in them. An indicator is a chemical that changes color in the presence of another chemical or identifies a change in PH. The indicator we are using today is iodine and it changes from reddish brown to black in
the presence of starch.

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</table>
Laboratory Experiment Written Report

Answers to the following questions must be included in your report.
Questions:

1. What is an indicator?

2. What color is iodine?

3. What color is iodine if it is placed on a food substance that has starch?

4. What color is iodine if it is placed on a food substance that does not have starch?

5. What kinds of foods are high in starch?

6. Which kinds of foods do not have any starch at all?

7. Construct a menu with 3 meals that are high in starch

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<td>3. 3.</td>
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<td>4. 4.</td>
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Click on the carbohydrate link and answer the following questions:

carbohydrates
1. What are the two types of carbohydrates?

2. What does glucose provide the body with?

3. If you do not have glucose what does your body use for energy?
Scavenging for Elements: A digital Camera exercise

There are seven elements of design: line, shape, form, texture, and pattern, color and frame. Artists design their works by controlling and ordering in some way the elements of art. “Scavenging for Some Elements” will build upon your knowledge of the elements most important for photographic design. Scour the campus for potential elements.

Make your choices good ones. Treat this as a serious exercise to learn about the elements of design and to demonstrate your knowledge and understanding of compositional strategies (rule of thirds, balance, center of interest). Because of demands on your time, you may have only one chance to complete this exercise. You will be given a disk and two class times to collect your images. Exchange images with someone in class and “Scavenge” examples of the four principals discussed in class.

- Proximity
- Alignment
- Repetition
- Contrast

Proximity: Group related items together.
Alignment: Everything should have purpose.
Repetition: Repetition adds visual interest
Contrast: The spice
Guidelines for composing with light

What is design?

1. Visual Balance (two types)
   a. Formal or symmetrical: design, which has the same forms on either side of an imaginary centerline, passing through the design from top to bottom.
   b. Informal or asymmetrical: design that has different forms on either side of an imaginary line, however visual balance is achieved.
   **Of the two asymmetrical balance is usually considered more subtle and sophisticated.

2. Center of Interest
   Produces a feeling of order in a design, point of emphasis.
   a. may be the largest form
   b. Placed well within the design area, away from borders.
   **May use a secondary point of interest to reinforce the center of interest.

3. Variety and Contrast
   The seasoning of a design. Needs to be selective and not compete with the primary center of interest.

4. Repetition of Form
   Necessary for creating good designs however too much can be redundant. Repetition must be simple and subtle. Design may assume internal relatedness originality. Must be Harmonious.

5. Overlapping of Parts
   Tends to build stability in design. Overlap selectively.

6. Unity
   Exists when all elements work together, a sense of “rightness” exists!
Categories of type

There are many thousands of different typefaces available right now, and many more being created every day. Most faces, though, can be dropped into one of the six categories mentioned below. Before you try to become conscious of the contrasts in type, you should become aware of the similarities between broad groups of type designs, because it is the similarities that cause the conflicts in type combinations. The purpose of this chapter is to make you more aware of the details of letterforms. In the next chapter I'll launch into combining them.

Of course, you will find hundreds of faces that don't fit neatly into any category. We could make several hundred different categories for the varieties in type—don't worry about it. The point is just to start looking at type more closely and clearly.

I focus on these six groups:

Oldstyle
Modern
Slab serif
Sans serif
Script
DECORATIVE
THE ELEMENTS OF DESIGN are the vocabulary or tools with which the artist works. The elements of design are: line, shape, form, value, texture, color and space.

PRINCIPLES OF DESIGN describe ways that these elements are organized to create a sense of beauty and unity.

LINE is the path of a moving point.
- Lines can be long, short, continuous, thick, thin, wavy, and zig zag.
- Lines can be vertical, horizontal, or diagonal
- Curving lines give the feeling of grace
- Vertical lines give the feeling of strength
- Horizontal lines give the feeling of stability
- Diagonal lines create the feeling of movement
- Zig Zag lines can give the feeling of anger or energy

SHAPE: A shape is an enclosed area.
- Shape is a two dimensional flat object
- A shape can be geometrical or organic.
- A shape can have hard or soft edges.

FORM is a three dimensional object.
- Form has height, width, and depth.
- Form is generally defined by shadow (value), which shows its volume.

VALUE relates to lightness and darkness of color or tone.
- Value can describe form and space.
- Tone refers to blacks, whites and shades of gray.
- Color value refers to lightness of darkness of a color. Adding white lightens the color (tint), adding black darkens the color (shade).

TEXTURE is the surface quality of an object.
- Texture appeals to the sense of touch
- Implied/visual texture is when a flat surface (drawing, photo etc.) has a surface quality that makes it look like the object should feel.
- Real texture is when the surface actually feels as it appears.

COLOR identifies natural and manufactured things as being red, yellow, orange etc.
- Hue is the name of a color, such as blue or yellow.
- Color intensity refers to the brightness of dullness of a color.

SPACE (PERSPECTIVE) indicates areas in an image (positive and negative); also the feeling of depth in a two dimensional work of art.
- Positive space is the object in the image
- Negative space is the area surrounding the object in the image.
- Aerial or atmospheric perspective creates the illusion of distance by muting color and blurring detail as objects get farther away.
- Linear perspective employs sets of parallel lines getting closer together in the distance until they merge at an imaginary vanishing point of the horizon.
- Overlapping planes create distance by placing objects in front of other objects
- There are several other kinds of perspective that artists may use to create a sense of depth.
The process

Where do you begin when you start to design or re-design something?

**Start with the focal point.** Decide what it is you want readers to see first. Unless you have chosen to create a very concordant design, create your focal point with strong contrasts.

**Group your information** into logical groups: decide on the relationships between these groups. Display those relationships with the closeness or lack of closeness (proximity) of the groups.

As you arrange the type and graphics on the page, **create and maintain strong alignments.** If you see a strong edge, such as a photograph or vertical line, strengthen it with the alignments of other text or objects.

**Create a repetition,** or find items that can have a repetitive connection. Use a bold typeface or a rule or a dingbat or a spatial arrangement. Take a look at what is already repeated naturally, and see if it would be appropriate to add more strength to it.

Unless you have chosen to create a concordant design, make sure you have strong contrasts that will attract a reader's eye. Remember—contrast is contrast. If everything on the page is big and bold and flashy, then there is no contrast! Whether it is contrasting by being bigger and bolder or by being smaller and lighter, the point is that it is different and so your eye is attracted to it.
Things to do to increase your visual awareness

In one of my beginning graphic design classes we coined the phrase VIP: visually illiterate person. This appellation was usually applied to the client. If you were recently a VIP, now that you’ve read this far you will never be one again. Here are a few things you can do to increase your visual awareness even more.

See it. Keep a swap file. Some people call this an idea file, or a morgue. It is simply a file folder or even a box where you keep designs that have impressed you—flyers, brochures, graphic images, calligraphy, type arrangements, packaging, advertising—anything that strikes a chord in you. Designers always have a swap file, and they use it for inspiration and ideas. Before you start another project, look through your swap file.

Say it. When you see a design you like, spend a couple of minutes putting into words why you like it. Consciously pick out the places where the principles of proximity, alignment, repetition, and contrast have been used. Make a mental or written note of any bold and daring technique that was used, such as extra large or small type, a unique graphic treatment, interesting spacing, etc.

Sketch it. When you come across a poorly designed piece, sketch a little improvement. Or cut the pieces out and rearrange them. When you actually put pencil to paper, more ideas pop out than when you just think about it. I never know what my books are going to look like until I start producing them, until I see things growing on paper (or monitor).
Size  ▲ Don't be a wimp.

Weight  ▲ Contrast heavy weights with light weights, not medium weights.

Structure  ▲ Look at how the letterforms are built—monoweight or thick/thin.

Form  ▲ Caps versus lowercase is a contrast of form, as well as roman versus italic or script. Scripts and italics have similar forms—don't combine them.

Direction  ▲ Think more in terms of horizontal type versus tall, narrow columns of type, rather than type on a slant.

Color  ▲ Warm colors come forward; cool colors recede. Experiment with the "colors" of black text.
Proximity

If items are related to each other, group them into closer proximity. Separate items that are not directly related to each other. Vary the space between to indicate the closeness or the importance of the relationship.

What Goes Around Comes Around

Lessons from hitchhiking across the country

Robin Williams
January 1, 2001

By putting the title and subtitle close to each other, we now have one well-defined unit, rather than six apparently unrelated units. It is now clear that those two topics are closely related to each other.

By moving the by-line and date farther away, it becomes instantly clear that although this is related information and possibly important, it is not part of the title.
Alignment

Be conscious about every element you place on the page. To keep the entire page unified, align every object with an edge of some other object. If your alignments are strong, then you can choose to break an alignment occasionally and it won't look like a mistake.

Even though the author's name is far from the title, there is a visual connection between the two elements because of their alignment.

The example on the previous page is also aligned—a centered alignment. As you can see, though, a flush left or right alignment (as shown in the example on this page) gives a stronger edge, a stronger line for your eye to follow.

A flush left or flush right alignment also tends to impart a more sophisticated look than does a centered alignment.

What Goes Around Comes Around
Lessons from hitchhiking across the country

Robin Williams
January 1, 2001
Repetition

Repetition is a stronger form of being consistent. Look at the elements you already repeat (bullets, typefaces, lines, colors, etc.); see if it might be appropriate to make one of these elements stronger and use it as a repetitive element.

What Goes Around,
Comes Around.
Lessons from hitchhiking across the country

Robin Williams

The distinctive typeface in the title is repeated in the author's name, which strengthens their connection even though they are physically far apart on the page. The small triangles were added specifically to create a repetition. Although they each point in a different direction, the triangular shape is distinct enough to be recognized each time. The "color" of the triangles is also a repeated element. Repetition helps tie separate parts of a design together.
Contrast

Would you agree that the example on this page attracts your eye more than the example on the previous page? It's the contrast here, the strong black versus white, that does it. You can add contrast in many ways—rules (lines), typefaces, colors, spatial relationships, directions, etc. The second half of this book discusses the specific topic of contrasting type.

Adding contrast to this was simply a matter of adding the black box.

I added a bit of contrast in the type by making the subtitle italic vs. the roman of the title and by-line. (The title is Bodoni Poster Compressed; the subtitle is Bodoni italic.)

Can you describe where the principles of proximity, alignment, and repetition are also being used in this example?

What Goes Around Comes Around

Lessons from hitchhiking across the country

Robin Williams
Little Quiz redesign this ad

What are the problems with this phone book ad? Make a list of the problems and solutions.

Clues: How many different typefaces are in this ad? How many different alignments? What could you use as a strong line against which to align everything else? WHY IS SO MUCH OF THE TEXT IN ALL CAPS? Are the logical elements grouped together into close proximity? Is there a focal point? Why not, and how could you create one? What could you use as repetitive elements? Do you need the heavy border and the inner box?

Take a piece of tracing paper and trace the outline of the ad. Then move that shape around and trace the individual elements, rearranging them into a more professional, clean, direct advertisement. Work your way through each principle: proximity, alignment, repetition, and contrast.
Little Quiz  contrast or conflict

Look carefully at each of the following examples. Decide whether the type combinations contrast effectively, or if there is a conflict going on. State why the combination of faces works (look for the differences), or state why it doesn't (look for the similarities). [Ignore the words themselves—don't get wrapped up in whether the typeface is appropriate for its product, because that's another topic altogether. Just look at the typefaces.] circle the correct answers.

contrasts  conflicts

FANCY

contrasts  conflicts

PERFUME

contrasts  conflicts

extremely good

DOGFOOD

contrasts  conflicts

MY MOTHER

This is an essay on why my Mom will always be the greatest mother in the world. Until I turn into a teenager.

contrasts  conflicts

FUNNY FARM

Health Insurance

contrasts  conflicts

let's DANCE tonight

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Middle School Lesson Plan: Make Every Cent Count!

1. Format an Organizing Center
   a. Format
      i. Theme - What is a culture? How do we learn about a culture?
   b. Organizing Center
      i. How do we learn about a culture by studying its currency?

2. Concept Wheel

   **LANGUAGE ARTS:**
   - Discussion of symbols and their uses
   - Historical fiction about American history (presidents, liberty)

   **SOCIAL STUDIES/HISTORY:**
   - Study of archeology
   - Different types of currency of various cultures
   - 50 state quarters and their symbols

   **FIELD TRIPS:**
   - Trip to Washington D.C. to see the U.S. Mint and other national memorials
   - Coin collectors

   **SCIENCE:**
   - Analyzing the mixtures of metals used in coins
   - Process of making currency

   **MATH:**
   - Value of currency
   - Figuring out production figures of money
   - What is the gross national product?

   **ARTS:**
   - Design a coin for your family
   - Design a coin for a country that the class has studied.
   - Design a coin for a state quarter that has not been created.

   **THEME:** How do we learn about a culture by studying its currency?

   a. Science-related questions
      i. How would you analyze the mixtures of metals used in coins?
      ii. What is the process of making coins and paper money?

   b. Math-related questions
      i. What is the gross national product?
      ii. How much money is printed or coined each year?

   c. Social Studies-related questions
      i. What is archeology?
      ii. What do artifacts tell us about a culture?
      iii. What are 50 state quarters and their symbols? What do they represent?
      iv. What is the Federal Reserve Bank?
      v. How do currencies of various cultures differ?
Materials
- Enough pennies for each student
- Other examples of foreign currency

Procedure
1. Essential question (Science): What is the composition of different currencies, and how does this impact their preservation throughout time?

Activities to answer essential question:
- a. Visit to the U.S. Mint or money printing plant.
- b. Visit to a coin collector
- c. Lab activities to test the composition of coins.
- d. Lesson on watermarks and anti-counterfeiting techniques

Skills, Standards and Assessments:

| Learning about the process of blanking and pressing | Understanding mechanics and machinery | Presentations about the plant and how the machinery works together | Lab experiments |

2. Essential question for math: What is the value of currency, how is it decided, and what is the economic impact when values change?

Activities to answer essential question
- a. The exchange rate for the Canadian dollar is extremely favorable to Americans right now. Tourism into Canada has also increased dramatically. What is the relationship between the two of them and why?
- b. Study inflation and research what this means to the average American family.

Skills, Standards and Assessments:

| Computation | Ability to compute numbers quickly and efficiently | Conversion of American dollars into different currencies | Reports about the economic stability of a country based on its financial figures | Debates |
| Compare and contrasting | Analyzing numbers | Comparing facts | Reading graphs | Understanding the importance of economics |
| Understanding cause and effect | Reading graphs | Understanding the importance of economics | Understanding general economic principles | Debates |
| Understanding general economic principles | Understanding general economic principles | Debates | Discussions | Oral and written presentations | Reading the newspaper |

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3. Essential question for Social Studies/History: How have currencies changed throughout time, and how does archeology help to record and examine these changes?

Activities to answer essential question:

a. Start off the unit by giving each student a penny to examine. Tell them that they are archeologists and they have just found this new artifact. What can you learn about a society from this artifact?

b. What is liberty? What is "In God We Trust?" What is the history of these phrases? Do you think they should go on all American money?

c. Look at paper money or coins from other countries. How are they different from the United States? How are they similar? What do they tell us about their cultures and what they deem important?

d. Go through all of the different denominations and brainstorm a list of all the people on coins and bills. Divide up the people and the students will research each one.

e. Discussions about why certain people were chosen.

Skills, Standards and Assessments:

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<th>Standards</th>
<th>Assessments</th>
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<td>Thinking chronologically</td>
<td>Working on their own historical narratives</td>
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<td>Interpreting data</td>
<td>Historical analysis and interpretation</td>
<td>Designing their own coins</td>
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<td>Conducting historical research</td>
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<td>Reading historical analysis or narratives</td>
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4. Essential question (Arts): What is the process by which different currencies are designed?

Activities to answer essential question:

a. Design your own family coin.

b. Design a new penny of the future.

c. Debates about whether or not the penny should exist in the future.

d. Design a new quarter for Puerto Rico, a commonwealth of the United States, or for a state for which the new quarter has not been designed.
Skills, Standards and Assessments:

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<td>Design a new penny or state coin.</td>
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<td>Historical analysis and interpretation</td>
<td>Presentation</td>
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<td>Predictions about what a future coin would look like</td>
<td>Comparing the evolution of the designs of the coin.</td>
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<tr>
<td>Compare and contrasting</td>
<td>Timeline of all of the people who have been featured on American currency</td>
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</tr>
</tbody>
</table>

5. Essential question for Language Arts: What is the meaning of a symbol, and what is the reasoning behind why certain symbols are chosen for certain forms of currency?

Activities to answer essential question:

a. Research on the Internet about the U.S. Mint. Students can do mini-reports or presentations about its different aspects. Create their own "museum" of the Mint.

b. Visit the U.S. Mint on a field trip.

c. Study the creation and design of coins and how symbols are chosen.

Skills, Standards and Assessments:

<table>
<thead>
<tr>
<th>Skills</th>
<th>Standards</th>
<th>Assessments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distinguishing past and present and future time</td>
<td>Thinking chronologically</td>
<td>Studying its initial role and what its purpose is now</td>
</tr>
<tr>
<td>Interpreting data</td>
<td>Historical analysis and interpretation</td>
<td>Creating a &quot;museum&quot; of the U.S. Mint</td>
</tr>
<tr>
<td>Compare and contrasting</td>
<td>Conducting historical research</td>
<td></td>
</tr>
<tr>
<td>Understanding cause and effect</td>
<td>Reading historical analysis or narratives</td>
<td></td>
</tr>
<tr>
<td>Understanding cause and effect</td>
<td>Reading historical analysis or narratives</td>
<td></td>
</tr>
</tbody>
</table>
d. Arts-related questions
   i. How are coins and paper money designed?
   ii. How would you go about designing a coin for a country that you have studied?
   iii. How would you design a coin for a state quarter?

e. Language Arts-related questions
   i. What is a symbol and why do we use them?
   ii. What are the stories behind the figures that appear on currency?

f. Field trips
   i. Trip to Washington D.C. - national memorials and the U.S. Mint
   ii. Meet with a coin collector

3. What are some essential questions?
   a. Essential Question 1 (Science): What is the composition of different currencies, and how does this impact their preservation through time?
   b. Essential Question 2 (Math): What is the value of currency, how is it decided, and what is the economic impact when values change?
   c. Essential Question 3 (Social Studies/History): How have currencies changed throughout time, and how does archaeology help to record and examine these changes? Does the value of currency still change today?
   d. Essential Question 4 (Language Arts): What is the meaning of a symbol, and what is the reasoning behind why certain symbols are chosen for certain forms of currency?
   e. Essential Question 5 (Arts): What is the process by which different currencies are designed?

4. Align Essential Questions with skills and assessments
   Essential Question 1 (Science): What is the composition of different currencies, and how does this impact their preservation through time?

<table>
<thead>
<tr>
<th>Skills</th>
<th>Assessments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calculating exchange rates</td>
<td>Calculating the numbers</td>
</tr>
<tr>
<td></td>
<td>Finding patterns</td>
</tr>
<tr>
<td></td>
<td>Understanding the strength of the economy</td>
</tr>
</tbody>
</table>

222
b. Essential Question 3 (Social Studies/History): How have currencies changed throughout time, and how does archaeology help to record and examine these changes? Does the value of currency still change today?

<table>
<thead>
<tr>
<th>Skills</th>
<th>Approaches</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study of exchange rates</td>
<td>Research</td>
</tr>
<tr>
<td>Understanding the role of the Federal Reserve Bank</td>
<td>Presentations - written and oral</td>
</tr>
</tbody>
</table>

c. Essential Question 4 (Language Arts): What is the meaning of a symbol, and what is the reasoning behind why certain symbols are chosen for certain forms of currency?

<table>
<thead>
<tr>
<th>Skills</th>
<th>Approaches</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understanding symbolism</td>
<td>Identify the different symbols on American currency and research its historical significance</td>
</tr>
<tr>
<td>Understanding a culture through its arts, literature and music</td>
<td>After studying, reading, listening and analyzing certain works of art and cultural pieces, have them design paper money and write a research paper explaining why they have chosen those symbols to use. Research Essay writing Oral presentations</td>
</tr>
</tbody>
</table>

d. Essential Question 5 (Arts): What is the process by which different currencies are designed?

<table>
<thead>
<tr>
<th>Skills</th>
<th>Approaches</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understanding of mottos and symbols</td>
<td>Designing money for a country that students have studied in class</td>
</tr>
<tr>
<td>Design and layout</td>
<td>Design your family coin, complete with mottos and symbols Create a brand new denomination of a coin</td>
</tr>
</tbody>
</table>

Step by step instructions for "Make Every Cent Count!"

Unit Objectives for the student:

1. Learn to identify the important aspects of a culture or society by studying its currency.
2. Learn about the U.S. Mint.
3. Learn about the presidents and other people used in American currency.
4. Learn about the science of printing and coining money.
5. Design your own coin.

Unit Organizing Center
Interdisciplinary Curriculum Design Template

Unit Planning Document

Prologue

1. Identify target population
   a. Age
   b. Class Title / Curriculum
   c. Size
   d. Special needs
   e. Targeted Standards

2. Identify Characteristics of the setting
   a. Time to teach the unit
   b. Daily schedule characteristics
   c. Room
   d. Team-taught or not?
      i. Team members’ schedules

3. Draft a Title for the Unit

4. Format an Organizing Center
   a. Choose a format (check one)
      topic
      theme
      work
      problem
      issue
   b. Choose an organizing center

5. Using the Concept Wheel
   a. Place your organizing center in the hub of your concept wheel
   b. Draw spokes off the hub; one spoke for each discipline you
      intend to include in your unit
   c. Brainstorm questions and line of inquiry about the organizing
      center from the perspective of each discipline—
      i. By yourself
      ii. With your students
      iii. With your colleagues
   d. List these questions under their respective disciplines
6. Develop Essential Questions
   a. Examine the questions generated during the brainstorming session
   b. Refer to the list of Standards created in Prologue section
   c. Choose essential questions for the unit that will give the unit scope and sequence and correspond with skills and standards
      i. Make a list:
         a. Essential Question 1:
         b. Essential Question 2:
         c. Essential Question 3:
         d. etc.

7. Align Essential Questions with skills and assessments
   a. Essential Question 1:
      Skills: Assessments:
   b. Essential Question 2:
      Skills: Assessments:
   c. etc.

8. Develop Step-by-Step activities
   a. From the Prologue section, refer to calendar / time to teach / teamed or not
   b. Create a page / calendar / document for each period / day / week (etc.) of class time (depending on your personal preference in scheduling)
   c. Map out each segment of your curriculum using the following format:

   (Format located at www.thirteen.org/teach/ or just type in “wnetschool” Select Concept to Classrooms> Interdisciplinary Learning in Your Classroom> Implementation.)
APPENDIX B

Rubrics

Laptop Student Assessment Tool
# Multimedia Project Rubric

**by Dan Senstock, Winner Multimedia Mania, Middle Grades Division**

**Evaluator:**

<table>
<thead>
<tr>
<th>Project Name:</th>
</tr>
</thead>
</table>

**Students:**

<table>
<thead>
<tr>
<th>______________________</th>
</tr>
</thead>
</table>

## Preliminary Work

<table>
<thead>
<tr>
<th>Inc.</th>
<th>Poor</th>
<th>Avg.</th>
<th>Good</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>5</td>
<td>7</td>
<td>10</td>
</tr>
</tbody>
</table>

- Students completed storyboards prior to computer creation.
- Students used primary and secondary research which included factual and interesting information.
- Students included a minimum of different resources.
- Students created a running bibliography.
- Students asked for permission of any copyrighted material.
- Students focused topic into workable subtopics.

## Design

<table>
<thead>
<tr>
<th>Inc.</th>
<th>Poor</th>
<th>Avg.</th>
<th>Good</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>5</td>
<td>7</td>
<td>10</td>
</tr>
</tbody>
</table>

- Students showed evidence presentation synthesis.
- Stack contains all elements: text, graphics, sound, video, animation.
- Stack contains all presentation elements: introduction, body, conclusion.
- Students showed design elements: contrast between text and background, graphics, video are not obtrusive and enhance the presentation.
- Multimedia elements are visible, adequate font choices, color schemes, sizes and styles are appropriate.
- Navigation is easy and understandable.

## Content

<table>
<thead>
<tr>
<th>Inc.</th>
<th>Poor</th>
<th>Avg.</th>
<th>Good</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>5</td>
<td>7</td>
<td>10</td>
</tr>
</tbody>
</table>

- Information is relevant and interesting.
- Students have used creativity in the design.
- Students have used correct punctuation, complete sentences, grammar and spelling.
- Students showed complete understanding of presented material.
- Students used knowledge of file size manipulation to control the size of the presentation.
- Students have labeled necessary video, graphics, maps for further understanding.
- Students have used a majority of original artwork, animations, video, graphics, sounds etc.

## Presentation

<table>
<thead>
<tr>
<th>Inc.</th>
<th>Poor</th>
<th>Avg.</th>
<th>Good</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>5</td>
<td>7</td>
<td>10</td>
</tr>
</tbody>
</table>

- The presentation is fluent from beginning to end.
- Students understand presentation media such as LCD panels, projectors, sound equipment, video equipment, etc.
- Students prepared and checked equipment prior to presentation.

## Total

<table>
<thead>
<tr>
<th>Inc.</th>
<th>Poor</th>
<th>Avg.</th>
<th>Good</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>5</td>
<td>7</td>
<td>10</td>
</tr>
</tbody>
</table>
# Multimedia Project Rubric

<table>
<thead>
<tr>
<th>Assignment: Communicate complete information on ___________ topic with __ Cards, __ Imported graphics, __ Original graphics, __ animations, __ video clips or advanced features.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginner: 1 point</td>
</tr>
<tr>
<td><strong>Topic/Content</strong></td>
</tr>
<tr>
<td>Technical Requirements (To be filled in by teacher)</td>
</tr>
<tr>
<td>Mechanics</td>
</tr>
<tr>
<td>Cooperative Group Work</td>
</tr>
<tr>
<td>Oral Presentation Skills</td>
</tr>
</tbody>
</table>

**Scale: 10 - 26=Expert 15 - 17=Novice 10 - 14=Intermediate 6 - 9=Beginner**  

Total Points: 0


May be reproduced for classroom use as long as no fee is charged and MidLink Magazine and/or SAS inSchool are cited as the source.  
(This Excel97 Spreadsheet may be downloaded from MidLink Magazine: http://www.cs.berkeley.edu/~MidLink)
Self-Evaluation: A Rubric for Reviewing Your Design

The word "rubric" comes from the Latin "rubrica," which means "to mark in red," referring to a practice by monkish scribes, who used red ink in the margins to highlight important bits of text in a larger document. A rubric defines the standards of excellence for assessment. Using a chart format, where one axis represents the levels of achievement and the other the performance criteria, a rubric lays out the elements on which student assignments will be graded in a clear, concise, and objective fashion.

Rubrics are a stellar means to assess students' skills—and they are just as effective in evaluating your own work. Dr. Jacobs has worked with us to develop a detailed rubric for this workshop that you can use to evaluate the interdisciplinary unit you designed in the Exploration section. Please click below to download the rubric.

Interdisciplinary Learning Rubric

This rubric is designed to assess understanding of designing an interdisciplinary unit, as presented in the Implementation section of this workshop. The score of 4 indicates that the teacher has excellent working knowledge of interdisciplinary unit design and is ready to implement a unit in his or her classroom. The score of 3 indicates that the teacher has moderate knowledge of interdisciplinary unit design but needs to focus more on the alignment of skills, assessments, and essential questions. The score of 2 indicates that the teacher is struggling to make meaningful connections among the disciplines and needs to define a clearer organizing center for his or her unit. The score of 1 indicates that the teacher should revisit the process of interdisciplinary unit design.

<table>
<thead>
<tr>
<th>Criteria:</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rationale</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Precisely stated purpose</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>with relevant supporting</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arguments; identifies reasons</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>why design is selected</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interdisciplinary component</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meaningful and effective</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>connections to other disciplines</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Designed to benefit the learner</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aim and benefits to</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>specific student population</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>made clear</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Purpose stated</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vague statements of purpose</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Purpose missing or ineffective</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explores connections to other disciplines</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Limited or forced connections to other disciplines</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No connections to other disciplines</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aim stated</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benefits unclear</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No purpose stated</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Essential questions</td>
<td>Highlight conceptual priorities; enable smooth transitions between disciplines; highly relevant to title/focus; embrace appropriate standards; fulfill outcomes</td>
<td>Clear to students; sequenced; enable transitions among questions; related to unit title/focus; include some standards; address some expected outcomes</td>
<td>Elicit limited responses; unevenly exhibit transitions between questions; vaguely relevant to title/focus; do not make standards clear; leave outcomes too vague to be attainable</td>
<td>Not investigative; elicit literal responses; composed of arbitrary sequences lacking transitions; no relation to title/focus; do not fulfill outcomes</td>
</tr>
<tr>
<td>---------------------</td>
<td>-------------------------------------------------</td>
<td>---------------------------------------------------</td>
<td>-------------------------------------------------------------------</td>
<td>---------------------------------------------------</td>
</tr>
<tr>
<td>Skills</td>
<td>Presented as precise, clear, and matched to needs of population; address essential questions; matched to standards throughout; written as descriptive verbs with specific techniques; variety of producer and consumer activities</td>
<td>General skills identified; partially target population; address most essential questions; some attempt at matching standards; written as action verbs; some variety of activities</td>
<td>Not appropriate for target population; unrelated to essential questions; identified but not matched to standards; written as verbs; limited variety of activities</td>
<td>No attention to skills; no link to essential questions or standards; overemphasis on a single activity</td>
</tr>
<tr>
<td>Assessments</td>
<td>Correlated to essential questions and specific skills; age-appropriate activities; a range of engaging activities that match learning styles; relevant to the goals and purpose of the unit</td>
<td>Most activities directly correlated to essential questions and specific skills; inconsistent match with developmental level of the students; relevant to the goals of the unit</td>
<td>Inconsistent correlation to essential questions and skills; not age-appropriate; tasks not relevant to students or to the goals of the unit</td>
<td>No correlation to essential questions and skills; not age-appropriate; directions unclear and lacking in focus; irrelevant to goals of the unit</td>
</tr>
<tr>
<td>Procedures</td>
<td>Classroom activities target skills; assessments clearly linked to essential questions; follow a clear and logical sequence</td>
<td>Classroom activities clearly connected to essential questions but lack connection to skills and assessments; inconsistent focus</td>
<td>Classroom activities strongly connected to skills and assessments but not relevant to essential questions; lack of flow from activity to activity</td>
<td>Essential questions, if posed, not addressed by activities; direction and focus unclear</td>
</tr>
<tr>
<td>Use of resources and materials</td>
<td>Range of engaging and appropriate print, human, and technology resources to enhance the unit</td>
<td>Evidence of appropriate resources to fulfill outcomes</td>
<td>Limited use of resources</td>
<td>No evidence of resources</td>
</tr>
<tr>
<td>Mechanics and language usage</td>
<td>Unit presented in a clear, consistent format; error free</td>
<td>Unit presented in a format; few errors</td>
<td>Unit presented in a cumbersome, unclear format; scattered mechanical errors</td>
<td>No format; multiple mechanical errors</td>
</tr>
</tbody>
</table>
APPENDIX C

Global Connections
GLOBAL CONNECTIONS

WHAT TO EXPECT FROM THIS CLASS
The purpose of Global Connections is to allow time to learn research strategies, gather information, and become familiar and comfortable using technology to enhance your studies in your classes now and in the future. You will be doing homework assignments, researching reports and projects, making presentations on basic computer functions, and working on in-class exercises. On some days there will be lectures, but most of the time will be spent using your computer in class.

THE BASIC EXPECTATIONS
1. Always bring your computer to class unless told otherwise.
2. You need to create a folder on your computer desktop for each of your classes: Science, Math, English, Geography, and any elective class that requires the use of your computer, such as Language, Health, Drama, Art.
3. You need to save every hand out that is given to you in this class. Because you have no textbook for this class, all the written information you are given will serve as your text. You will need to refer to this information from time to time and to study for tests.
4. You need to have your own network connector cord (the small white cord) and long connector cable with you every day in class. Your name or initials must be clearly written on each.
5. If your computer is not in working order and you cannot use it in class or at home, you must sign your name on the clipboard kept in the classroom. You must include your Global Connections class bell, the date your computer stopped working, the date it was turned into the computer office for repairs, and whether you are using a loaner or not. Check your name off when your computer is returned and in working order again.

THE BASIC RULES
1. In addition to your computer, you must always bring a pencil, something to write on, and your Global Connections folder to class every day.
2. Absolutely, positively no games, chat rooms, game screen savers, or any other game type program are to be used during class time. You are not to have any screen savers, programs, pictures, sound recordings, or any other item on your computer that contains material that would not be considered acceptable in the Middle School.
3. You must always have enough memory to run the programs that may be required for any of your classes.
4. During in-class work time, you are not permitted to access any other program unless you get specific permission from the teacher. (For example, if we are doing research on the WWW, you are not to be checking your e-mail)
5. The sound on your computer must be turned all the way down when using your computer during class, unless you have permission from Mrs. Hartle.
6. There is to be no talking during class when Mrs. Hartle is giving instructions, however, when you run into a problem or have a question pertaining to the operation of your computer or a program, you are to follow the "Ask three, then me," rule.
This means that you are to ask three available classmates for help before you ask the teacher. This cuts down on the time it takes to get individual help. Usually, minor problems and questions can be answered quickly by others in the class.

HOW YOU ARE GRADED
Your grade will be averaged equally between your 1) Homework grade 2) Daily grade and 3) Quiz/Test/Task Card grade.

1. Homework
1. Your homework grade is the average grade of all graded homework assignments turned in each quarter. If you are unable to complete a homework assignment due to a technical problem with your computer, that assignment will not be included in the average. You must discuss the missed assignment with Mrs. Hartle to determine if there is an alternative way to complete the assignment without the use of your computer.
2. Homework is assigned using both handouts and e-mail. If homework is assigned using e-mail when you do not have access to your account, it is your responsibility to see Mrs. Hartle for the assignment or ask a friend to print a copy for you.
3. Homework assignments are graded on a 10 point scale:
   10 = Exceptional, no room for improvement (A+)
   9 = Excellent, a few minor flaws, exceeds basic requirements (A)
   8 = Good, meets basic requirements, several minor flaws (B)
   7 = Fair, meets basic requirements, many minor flaws or a few major flaws (C)
   6 = Poor, meets some basic requirements, major flaws, minimum work done (D)
   5 = Very poor, barely meets basic requirements
   4 and below - Unacceptable
4. You will lose 1 point per day for late homework assignments. If the assignment is not handed in after 5 days (one week), you will receive a 0 for the assignment.
5. Homework that is late because of absence from school due to illness is not subject to this policy. You must discuss this late assignment with Mrs. Hartle to determine a reasonable date to get the assignment completed and handed in.
6. Assignments will be posted weekly. You are responsible for recording and keeping track of homework assignments completed and handed in.

2. Daily Grade
This grade indicates how well you work during class based on the expectations and classroom rules. You will earn points by:
- getting to class on time
- starting up your computer, hooking up to the network, and being ready to start work
- bringing needed materials for class
- staying on task and using class time wisely to work on assignments, figure out problems, troubleshoot
- cooperating and working well with classmates during group work
- helping other students troubleshoot problems and/or answer classmates’ questions
- maintaining a positive attitude!
You will lose points on your Daily Grade by:
- arriving to class late and not getting set up for class
- not having materials needed for class
- not using class time wisely; not doing class work; wasting time
- disturbing or distracting classmates; talking and making noise; not having your sound turned down
- accessing other programs not approved by Mrs. Hartle, including any type of chat room
- playing games, including game screen saver games
- not paying attention during instructions
- spinning your chair; rolling across the room away from your desk; needlessly readjusting your or any other chair
- not pushing your chair in when you leave the classroom
- leaving litter around your desk or on the floor
- displaying a poor, "I can't do it!" attitude

You will get a formal disciplinary report for:
- using, disturbing, altering, or operating any one else's computer without permission
- cheating
- lying
- showing blatant disrespect towards classmate and/or Mrs. Hartle
- repeated violations of any of the class room basic rules and expectations
- deliberately damaging or trying to damage your or any one else's computer
3. Task Card Presentations

You will be creating a list of steps needed to complete a task, or function, on your computer. The task should be one that you would like to learn for yourself and to explain to others. You may choose a task from the list or come up with one of your own. Once you decide on one, you need to write up a short description on the form provided and have it approved by Mrs. Hartle. Then you need to practice performing the task until you feel you know it well. If you need help learning how to do the task you choose, you may ask other students, Mrs. Hartle, other teachers, Upper School students at the Help Desk, your parents, or a book or magazine on computers. Write up step by step instructions that list all the directions a person would need to complete the task. Try to be as detailed as possible. When you have completed the steps, you will then teach this task to other students in the class who will be evaluating your directions for completeness and ease of use. You will keep a copy for your own Task Card folder and print one out to give to Mrs. Hartle.

Your grade will be based on:
1. Knowledge of the task
2. Presentation of the task
3. Quality and clarity of the Task Card Steps

Your classmates will be evaluating you on a scale of 1-10. The scores will be added and averaged to give you one class grade. Mrs. Hartle will grade you on a scale of 1-10 and your printed task card steps will be graded on a score of 1-10. All three grades will be averaged for an overall score.

Quizzes and Tests

The purpose of quizzes and tests is to help you review and apply the information presented in class. You will have at least 2 quizzes per quarter and one test each semester. You will be given plenty of notice and a comprehensive review sheet for each one. You will never be tested on material that we have not covered and reviewed in class. Tests and quizzes are graded on a percentage out of 100 points. I always include several extra credit questions to help calm any worries about the grade!
The goal of the Global Connections class is to create and develop information literate students. Using their laptops, in activities that relate directly to their curriculum, students will learn skills and strategies that will allow them to feel confident in solving information problems. The use of the laptops is a means to this end, providing one point of access to the larger world of information. In the process, they will be mastering computer and technology skills that are transferable to their lives and work in the information society.

Information literacy is defined as the ability to define an information task, seek a strategy, locate and access, use, synthesize and evaluate information from a variety of sources and formats.

An information literate student is one who:

- Recognizes the need and importance of information in society
- Recognizes that accurate and comprehensive information is the basis for intelligent decision making
- Can define an information problem
- Formulates and explains questions based on information needs
- Identifies a variety of potential sources of information
- Develops and uses successful strategies for locating information
- Accesses information, print source or electronic, efficiently and effectively
- Evaluates information critically and competently
- Organizes information for practical application
- Uses information effectively and creatively
- Produces and communicates information and ideas in appropriate formats
- Integrates new information into one's own knowledge
- Practices ethical behavior in regard to information and information technology
- Can operate and navigate the technology necessary to access the needed information

With this definition in mind, the skills learned in the Global Connections class should meet a set of standards to ensure that every student becomes information literate. There are some skills that should be mastered and some that should be learned at an introductory level. These skill areas can be broken down into four categories: the use of information, the use of hardware, the use of the system, and the use of software.
Use of Information:
- know, understand, use, and demonstrate a standard method for researching an information problem, i.e. The Big Six Skills Approach to Information problem solving
- understand ethical issues related to the use of computer networks
- know precautionary measures to remain safe using the Internet
- learn methods for evaluating information found on the Internet
- recognize valid, appropriate and relevant information
- recognize biased, commercial and propaganda-like information
- collaborate with peers in the research process
- know basic copyright guidelines involved in accessing software, cutting and pasting content, and copy and distribution of information used in the document or file

Use of hardware:
- know proper handling and care of computer, screen, cords, keyboard, peripherals, disks, network connections
- can start, restart and shut down a computer
- know the methods and the best way to restart the computer if it crashes
- can connect peripheral equipment (CD ROM drives, scanners, cameras, printers)
- can load floppy disks and CD-ROM disks
- can knowledgeably troubleshoot minor problems and errors related to the computer equipment using the Help file
- can operate all external functions of their computers: sound control, brightness control, use of right and left buttons, insert modem and system card
- can manage power source options, charge batteries, connect to a power source
- demonstrate keyboard skills appropriate to grade level: touch type at sustained rate of 20-25 words per minute

Use of the system:
- use the start menu
- open and close windows on the desktop and move items
- move and resize a window and scroll the contents of the window
- operate options menus to reset preferences and settings
- find a file and open an application
- use Windows Explorer
- make shortcuts to find frequently used files
- hide, show and use the Taskbar
- save a file on a floppy disk or in a folder
- print a file
- copy files
- choose and change a printer
- connect to the network
- change Windows and network passwords
- save files on the file server account
- install software from the file server
- create, organize, and delete files and folders
- change network and system password
- know and understand basic computer and technology terms
- know how to minimize and maximize windows

Use of software:

Outlook:
- open the program, and read mail
- send, forward and reply to a message
- address mail using the Global Address book or Personal Address book
- attach a file to a message
- make a signature file
- customize preferences
- know how to use extra features of program, i.e. calendar, tasks, journal
- make and use a distribution list

Word:
- type a new file and save it on a disk
- change the font, style, and size of text
- select and move text within a file
- use the cut and paste edit functions
- save a file to hard drive
- print a file
- use the spelling and grammar check functions
- change the margins of a file
- change the paragraph indentation
- change the line spacing in a file
- know how to use shortcuts from the taskbar
- preview a page on the screen
- use the header and footer of a file
- arrange the text in columns
- make tables of information
- add a footnote to a file
- change the orientation of text in a file
- know how to use a Wizard shortcut
- be familiar with functions of pop-up menu items (File, Edit, View, Insert, Format, Tools, Table, Window and Help)

Excel:
- create a new spreadsheet Worksheet
- enter information in rows and columns
- move easily from cell to cell
- use AutoCorrect to make corrections
- enter data in a series of cells
- enter simple formulas into cells
- duplicate formulas into cells
-change information in one cell and check the effect of the new information
-copy and paste information from one cell or group of cells to another
-insert and delete rows and columns
-change the size of the rows and columns both manually and from a menu
-change the format of text and number
-add colors and borders to a worksheet
-print a worksheet
-include or delete the grid lines, header and footer when printing
-reduce, enlarge, or print horizontal
-select a specific print area
-select information on a Worksheet
-make a chart of specific information
-label and title chart information

Power Point:
-create a new presentation
-enter text on the presentation pages
-move easily from page to page
-duplicate formulas without having to retype them
-save the presentation on your disk or on the hard drive
-add graphics to the pages of the presentation
-add a background graphic to multiple pages
-change the background of all or a specified number of pages
-change the style of text
-rearrange the pages
-print selected pages of the presentation
-use the drawing tools to add lines and rectangles of interest
-change the color of pages
-insert a page between existing pages
-use Auto-design features

Miscellaneous Software:
-know how to access software on the network
-follow installation instructions in software manual and install necessary client, if applicable
-know how to refer to manual for specific functions
-use on-screen directions, buttons, menus, and help options
-know how to cut and paste information onto hard drive or document, depending on copyright restrictions
-know how to download and use software from the World Wide Web
-know how to determine if contents of software fulfills the information need
APPENDIX D

Student Timelines
Student Time Lines

Each 9th grade student is responsible for the year-long construction and maintenance of a time line covering the periods studied in History, English, and Art. The main time line, which encompasses the entire year, is given to the student; it is the student’s responsibility to create and expand time lines for the individual periods they are studying. Class notes, papers written for specific topics, and pictures of art projects are included in their time lines. When you view the main time line, some of the links may not have been completed - that is an indication that students have not yet studied those periods.

While students initially present their papers to the teacher, each is responsible for making corrections before posting those documents to the web page. If changes have not been made, the student alone is responsible for the error, not the teacher.

Students are divided into 5 different sections. To view a student time line, click on the section and then the student’s name.

<table>
<thead>
<tr>
<th>Carey/Hogan 1</th>
<th>McClelland/Jimerson 1</th>
<th>Carey/Hogan 2</th>
<th>McClelland/Jimerson 2</th>
<th>Dunn/Steinert</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brett Ausbuser</td>
<td>Heather DeYoung</td>
<td>Maggie Gisler</td>
<td>Robert Kulwin</td>
<td>Robin Scallan</td>
</tr>
<tr>
<td>William Bernstein</td>
<td>Emily Ehrlichwender</td>
<td>Cara Green</td>
<td>Aashi Mital</td>
<td>Danielle Schneider</td>
</tr>
<tr>
<td>Brian Costello</td>
<td>Adam Frankel</td>
<td>Lee Isaacsohn</td>
<td>Sarah Motley</td>
<td>Jennifer Shad</td>
</tr>
</tbody>
</table>

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Welcome to my Humanities website. On this website you can find information about what the ninth grade has been learning about in Humanities. There is information about many different civilizations and information about the four themes of that class. You can choose to go to the homepage, or the student selection page, where you can choose different students' webpages to look at. You can also go to the timeline, where you can then pick which civilization you would like to read about. If you would like to visit the CCDS Home Page simply click on the link and you will come to the home page.

Here is my link to my Roman Map
Here is my link to my Roman Time Line
Here is my link to my Exam Essays
Here is my link to my Islam Map
To view my Romeo and Juliet page, click here
Click here to visit my comparison of women in ancient societies page

If you have any comments about my website, you can email me at groaliscan@countryday.net
<table>
<thead>
<tr>
<th>Region</th>
<th>Time Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Middle East</td>
<td>Hebraic, Arabic</td>
</tr>
<tr>
<td>India</td>
<td>Delhi, Gupta, Islam</td>
</tr>
<tr>
<td>China</td>
<td>Shang, Zhou, Han</td>
</tr>
<tr>
<td>Mediterranean</td>
<td>Egyptian civiliza, Greek states, Roman Empire</td>
</tr>
<tr>
<td>Africa</td>
<td></td>
</tr>
<tr>
<td>Europe</td>
<td>Medieval</td>
</tr>
</tbody>
</table>

**Time Period**

<table>
<thead>
<tr>
<th>3000</th>
<th>2500</th>
<th>2000</th>
<th>1500</th>
<th>1000</th>
<th>500</th>
<th>BC</th>
<th>AD</th>
<th>500</th>
<th>1000</th>
<th>1500</th>
<th>2000</th>
</tr>
</thead>
</table>
Each student is responsible for the year-long construction and maintenance of a time line covering the periods they have studied. The main time line, which encompasses the entire year, is given to the student; it is the platform on which all class notes, papers written for projects, and additional information for the students are assembled. When you view the main time line, some of the sections will be marked with a red circle. This indicates that the student has not yet studied those periods.

While students initially present their papers to the teacher, each is responsible for making corrections before posting those documents to the web page. If changes have not been made, the student alone is responsible for the error, not the teacher.

Students are divided into 5 different sections. To view a student time line, click on the section and then the student's name.

- Carey/Hogan 1
- McClelland/Jimerson 1
- Carey/Hogan 2
- McClelland/Jimerson 2
- Dunn/Steinert
The Hebrew civilization was a very religious civilization. Their religion, Judaism, was a major world religion and helped develop the religions Christianity and Islam. The history of the Hebrews was written down in the Hebrew Bible, known as the Old Testament. According to Hebrew tradition they were descendants of the patriarch Abraham, who had moved to Palestine from Mesopotamia. The Hebrews believed that there was only one God, named Yahweh, who was the creator of the world, and everything in it. They believed that God ruled everything and that people, whether or not they knew it, were his servants. They also believed that God created nature, but was not in nature. They thought that everything created by God should be admired as beautiful, but would not be considered a God itself. The Hebrew religious tradition had three special aspects, the covenant, law, and prophecy. They believed that God made a covenant, or contract, with the tribes of Israel during the exodus of Egypt, when Moses led his people out of bondage. Hebrews also believed that prophets, or certain religious teachers, were sent by God to serve voice to God's people. The main difference between the Hebrew religion and other religions in Western Asia and Europe was the fact that they only believed in one god.

The Hebrews were nomadic people who were organized in tribes. Their lifestyle was based on the grazing flocks and herds of animals, rather than the farming systems that most other civilizations were based upon. The Hebrews were moved to Egypt because of drought. Their beliefs are that when they arrived in Egypt they were enslaved until Moses led them out of Egypt in 13th century BC. The Hebrews then moved to Palestine, where they created a monarchy. By the time King Solomon was ruling, which was 971 to 931 BC, the Hebrews had control all over Palestine, and Jerusalem became the capital. The united kingdom of the Hebrews became known as Israel. King Solomon built a very important temple in the city of Jerusalem. The temple was viewed as the symbolic center of their religion and also of the Hebrew Kingdom.

After King Solomon died, Israel was split into two different kingdoms. There was the Kingdom of Israel, which was made up of ten different tribes and its capital was at Samaria. The Kingdom of Judah was the southern kingdom. It consisted of two tribes and its capital was at Jerusalem. In 722 BC the Assyrians overran the Kingdom of Israel. The southern kingdom was still independent but soon the Chaldeans conquered the Kingdom of Judah. Many Hebrews were sent to Babylonia. Soon the Persians conquered the Assyrians and allowed the Hebrews back into Jerusalem and they rebuilt the city.

The information used to write this is from World History to 1500 by Jonathan J. Spiekogel 245
For the year-long construction and maintenance of a time line covering the periods, each student is responsible for making corrections before posting those documents to the web page. If changes have not been made, the student alone is responsible for the error, not the teacher.

Students are divided into 5 different sections. To view a student time line, click on the section and then the student's name.
May 9 in class: reading quiz, introduce last China assignment, comparison of EDWS

HW for May 10: Wild Swans, pp. 292-305; 312-315; 326-333

May 10 in class:
May 11 in class:
HW for May 11: Wild Swans, pp. 391-395 (bottom of page); 398-405; 409 (all of page); 412-417 (end of page)

May 11 in class:

HW for May 15: Wild Swans, pp.: 418-420

May 15 in class:

HW for May 16: Wild Swans, pp. 433-443 + worksheets

May 16 in class: due to circumstances beyond our control, I will not be in class today. Please read pp. 438-464 in class, and start the second worksheets, due tomorrow

HW for May 17: Wild Swans, pp. 495-508 + second worksheets last reading of year

May 17 in class:

HW for May 21: powerpoint comparing Jane Eyre & Wild Swans due

May 21 in class: begin review (Rome, Islam, and China in regards to Gender and the Other

HW for May 22: review Rome, Islam and China in regards to Gender and the Other

May 22 in class: Gender and the Other


May 23 in class: N&C, I&C

HW for May 25: due!

May 7 in class: paper on CCOS under Communism due. Wild Swans character chart

May 29: EXAM
Jane Eyre:Wild Swans Timeline- (Acklen-Yee)
Jane Eyre/Wild Swans Timeline-(Amoils-Ward)

Old assignments and worksheets:

- Annotations of Mao's Little Red Book
- Confucianism
- Wrap of Middle Ages (power point presentation)
- Hyperlinked handout on Egypt v. Afghanistan
- Write up on Humanities Themes
- Gender assignment-cross cultural roles
- Nature's impact on civilizations across civilizations
- The uncivilized other
Second Semester Review

Humanities Second Semester Review Sheet.

The format for the exam will be as follows:

I. Matching (1 pt. per match - 10 pts. total)
II. Identifications. "Identify and state the significance of" (10 ids - 2 pts each - 20 pts. total)
III. Maps. "Locate the following geographic features:" (2 - one big map) (30 map points - 1 pt. each - 30 pts. total)
IV. Short answers (5 questions - 25 pts. total)
V. Essay (1 question - 25 pts. total)

Identifications: Identify and state the significance of the following:

<table>
<thead>
<tr>
<th>Consul</th>
<th>Senator</th>
<th>Cincinnatus</th>
</tr>
</thead>
<tbody>
<tr>
<td>consul</td>
<td>Cassius</td>
<td>Consul of the plebs</td>
</tr>
<tr>
<td>Marcus</td>
<td>Julius Caesar</td>
<td>Trajan</td>
</tr>
<tr>
<td>Nerva</td>
<td>Trajan</td>
<td>Theophrastus</td>
</tr>
<tr>
<td>procurator</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Scientist</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morgane Le Fey</td>
</tr>
<tr>
<td>Martin Luther</td>
</tr>
<tr>
<td>Charles Edward</td>
</tr>
<tr>
<td>Wright</td>
</tr>
<tr>
<td>Henry VIII</td>
</tr>
<tr>
<td>John</td>
</tr>
<tr>
<td>Ibn Sina</td>
</tr>
<tr>
<td>Khalid</td>
</tr>
<tr>
<td>Omar Chayyam</td>
</tr>
<tr>
<td>Ahmad</td>
</tr>
<tr>
<td>Abu Bakr</td>
</tr>
<tr>
<td>Muhammad</td>
</tr>
<tr>
<td>Sunna</td>
</tr>
<tr>
<td>Caliph</td>
</tr>
<tr>
<td>Umayyad Dynasty</td>
</tr>
<tr>
<td>Musulm</td>
</tr>
<tr>
<td>Arabian Knights</td>
</tr>
<tr>
<td>Haddith</td>
</tr>
<tr>
<td>Taliban</td>
</tr>
<tr>
<td>Manchu Dynasty</td>
</tr>
<tr>
<td>Han Chinese</td>
</tr>
<tr>
<td>Opium Wars</td>
</tr>
<tr>
<td>Boxer Rebellion</td>
</tr>
<tr>
<td>Sun Yat-sen</td>
</tr>
<tr>
<td>Kuomintang</td>
</tr>
<tr>
<td>Jiang Jieshi</td>
</tr>
<tr>
<td>Mao Zedong</td>
</tr>
<tr>
<td>Long March</td>
</tr>
<tr>
<td>Great Leap Forward</td>
</tr>
<tr>
<td>Cultural Revolution</td>
</tr>
<tr>
<td>Little Red Book</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Map</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rubicon</td>
</tr>
<tr>
<td>Rome</td>
</tr>
<tr>
<td>Namara</td>
</tr>
<tr>
<td>Fust</td>
</tr>
<tr>
<td>Aqumonopole</td>
</tr>
<tr>
<td>Tunisia</td>
</tr>
<tr>
<td>Indonesia</td>
</tr>
<tr>
<td>Afghanistan</td>
</tr>
<tr>
<td>Egypt</td>
</tr>
<tr>
<td>Russia</td>
</tr>
<tr>
<td>Bashin</td>
</tr>
<tr>
<td>Yangtze River</td>
</tr>
<tr>
<td>Yangtze River</td>
</tr>
<tr>
<td>Taiwan</td>
</tr>
<tr>
<td>China</td>
</tr>
<tr>
<td>Gross Wall</td>
</tr>
<tr>
<td>Yuhai</td>
</tr>
<tr>
<td>Japan</td>
</tr>
<tr>
<td>China Sea</td>
</tr>
</tbody>
</table>

Short Answer:

1. List the principles of justice contributed by the Romans that are still in use today in our own justice system.
2. Why did Christianity attract so many followers? How did the persecution of Christians by the Romans actually backfire?
3. Why did the Roman Empire collapse? List three theories and then explain the one you think is the most likely and why.
4. Name two factors that led to the sterility of feudalism.
5. Explain two of the effects of the Crusades on Medieval Western European society.
6. List the 5 Pillars of Islam, and explain what each one requires of a Muslim.
7. Comment on the way the architecture of a mosque illustrates Islamic teachings. Include discussion of art, ornament, building features, and the shape of the mosque.

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8. Describe three ways in which, as De-hong says, "becoming a Communist is an agonizing process."

9. How does the creation of the Communist government affect traditional Chinese practices (family structure, wedding and burial ceremonies, traditional arts, religion, poetry & literature, education).

10. Using specific examples from the author's life (and her parents' life), explain why you think she decides to leave China in the 1970s.

**Essay**

1. This year we have been examining the concept of the Other, defined as whatever seems foreign or abnormal to a civilization. In a five or six paragraph essay, compare who has been made "the Other" within Roman, Medieval Europe, Islamic, and Modern Chinese civilization. Make sure you use at least three specific examples from each civilization. This means that you will need to examine EACH of the four civilizations we studied and discuss who might be considered an "Other" or "Others."

2. **Joint English-History (Carey-Hogan section)**. Write a five-paragraph essay explaining how Jesus' Apostles, the Roman board of Governors, and the Scribes & Pharisees believed to be the best way to deal with the issues surrounding Jesus of Nazareth, his followers, and his message. Make sure you use specific from the Old and New Testament to support your paragraphs on the Apostles and Scribes & Pharisees.
APPENDIX E

Inquiry Products

Inquiry Project Format..................Page 252

American Diary.......................Page 263

Conflict and Resolution..............Page 282
The Inquiry Project: Topic Ideas To Stir Your Imagination

Arts and Recreation
- The World of Comedy
- Broadway
- Hollywood Behind
- Mountaineering (or other outdoor activity)
- Fencing (or other sport)
- Picasso (or other artist)
- Journalism
- Fashion Design
- Maya Angelou, (or other poet/author)
- T.V. News

Geography and the Environment
- Antarctica
- Alaska/the Yukon
- The Tropics
- Rainforest Ecology
- Global Warming
- Deep Sea Biology
- Deserts
- Cave Exploration
- Plate Tectonics
- Bats (or other group of animals)
- Thailand (or some other country)

History
- The Great Depression
- The Roaring Twenties (or other decade)
- The Berlin Wall
- The California Gold Rush
- The Oregon Trail
- The Wives of Henry the VIII
- Winston Churchill, Adolf Hitler (or other world figure)
- Gunfighters of the Old West
- The French Revolution
- Egyptian Pharohs
- The Phoenicians
- The Alamo, The Gulf War (or other conflict)
- The Holocaust
- The Underground Railroad
- Women In WWII
- The Civil Rights Movement
- Cincinnati History
Religion and Philosophy
Native American Views of the Universe
Islam (or other religion)
Cults
Nonviolence
The Pope (or other religious leader)

Applied Sciences
AIDS, Leukemia, Heart Disease (or other disease)
Alcoholism (or other addiction)
Genetic Engineering
Fertility and Medicine
The Wright Brothers (or other inventors)
The Internet
Sustainable Technology
Hot Air Ballooning
Hubble Telescope
Modern Spy Technology
Mars (or other planet)
Meteorology
Auto Racing

Sociology
Poverty
World Population
The American Justice System
Assisted Suicide, Abortion (or other social issue)
The Welfare System
The NRA, The Ku Klux Clan (or other group)
Gender Issues in the 1990's
Homelessness in American Cities
Organized Crime
Habitat for Humanity, The Red Cross (or other social service program)
The Inquiry Project: Guiding Questions

This list is to be completed before our library trip. Brainstorm with a friend, then list questions related to your topic which you think your project would answer. As your work continues this list will grow and evolve.

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.
11.
12.
13.
14.
15.
16.
17.
18.
19.
20.
The Inquiry Project: Sources to Collect Downtown

Use your laptop research skills to find both book and magazine sources you can get at the main library. Record at least five such items below.

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.
The Inquiry Project: Article Ideas for Each Course

A common pitfall is to think only about the next paper due and forget where you are heading. Successful students will look ahead, making sure they have collected enough information for future articles, taking notes, and preplanning those papers. Record your article ideas here. (Room is included here for more than enough topics. Brainstorm, then star the ones you plan to do.)

History:
1. 
2. 
3. 

English:
1. 
2. 

(others items are the interview and the poem)

Math:
1. 
2. 
3. 

Science:
1. 
2. 
3. 

Language:
1. 
2. 

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The Inquiry Project: Schedule of Deadlines 1999-2000

<table>
<thead>
<tr>
<th>Article:</th>
<th>Completed During:</th>
</tr>
</thead>
<tbody>
<tr>
<td>About the Author</td>
<td>Sept 27-Oct 1</td>
</tr>
<tr>
<td>Language 1</td>
<td>Oct 4-15</td>
</tr>
<tr>
<td>History 1/English 1 with Interview Plan</td>
<td>Oct 18-29</td>
</tr>
<tr>
<td>English 1 with Interview Plan/History 1</td>
<td>Nov 1-12</td>
</tr>
<tr>
<td>Math 1/Science 1 *</td>
<td>Nov 15-Dec 1</td>
</tr>
<tr>
<td>Science 1/Math 1 *</td>
<td>Dec 2-10 and Jan 3-7</td>
</tr>
<tr>
<td>Language 2</td>
<td>Jan 10-21</td>
</tr>
<tr>
<td>History 2/English Interview Done and Poem</td>
<td>Jan 24-Feb 4</td>
</tr>
<tr>
<td>English Interview Done and Poem/History 2</td>
<td>Feb 7-17 (no school Friday the 18th)</td>
</tr>
<tr>
<td>Math 2/Science 2 *</td>
<td>Feb 21-Mar 3</td>
</tr>
<tr>
<td>Science 2/Math 2 *</td>
<td>Mar 6-17</td>
</tr>
<tr>
<td>Advertisement</td>
<td>April 3-21</td>
</tr>
<tr>
<td>Foreword</td>
<td></td>
</tr>
<tr>
<td>Cover</td>
<td></td>
</tr>
<tr>
<td>Guiding Questions</td>
<td>April 24-28</td>
</tr>
<tr>
<td>Table of Contents</td>
<td></td>
</tr>
<tr>
<td>Bibliography</td>
<td></td>
</tr>
<tr>
<td>Final Due Date</td>
<td>May 1</td>
</tr>
</tbody>
</table>

*Students in grade 7 Algebra will chose English or history topics instead of math topics. These are to be turned in Mr. Gilmore or Mr. Reynolds accordingly.

<table>
<thead>
<tr>
<th>A Typical Two-Week Schedule:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notes and Outline due the first Monday</td>
</tr>
<tr>
<td>First Draft due the first Friday</td>
</tr>
<tr>
<td>Final Draft due the second Friday</td>
</tr>
</tbody>
</table>

Other Dates:
Washington Trip: Monday – Friday, April 10-14
Cabaret: Thursday, May 4
Exams: Wednesday - Friday, May 31 - June 2.
The Inquiry Project: List of Tasks and Record Sheet

Check Off OR Record Grade When Completed

- Choose topic and create web to collect ideas
- Brainstorm questions (worksheet)
- Brainstorm 3-4 article ideas for each of five subject areas (worksheet)
- Do laptop research to collect list of materials to find at the library Oct. 5
- Brainstorm possible interviewees
- Write “About the Author” first draft
- Write “About the Author” final
- Language I first draft
- Language I final
- History I notes and outline
- History I first draft
- History I final
- Math I notes and outline
- Math I first draft
- Math I final
- Science I notes and outline
- Science I first draft
- Science I final
- English I notes and outline
- English I first draft
- English I final
- Interview plan (English)
- Language II notes and outline
- Language II first draft
- Language II final
- History II notes and outline
- History II first draft
- History II final
- Math II notes and outline
- Math II first draft
- Math II final
- Science II notes and outline
- Science II first draft
- Science II final
- English interview questions
- English interview first draft
- English interview final
- English poem
- Visuals
- Advertisement
- Foreword
- Cover
- Table of contents
- Guiding questions reworked
- Final bibliography
- Bind and turn in!
The Inquiry Project: Tips For Success

1. Pick a topic for which lots of information is available.
2. Pick a topic which will hold your interest and allow you to learn valuable information.
3. Take advantage of classmates and family members in early brainstorming sessions.
4. Make good use of that first library trip and the advice of our guides there.
5. Always collect the necessary bibliographic information when you get information from a source and put it on a note card. This will save you time later. You can sort the cards alphabetically.
6. Do lots of reading and information collecting well before you need to start writing. Keep in mind the future articles you plan to write.
7. Pay attention to due dates. Put all due dates into your plan book. Lateness does get carried over to your final magazine grade.
8. Make your first drafts as polished and complete as you can. Your teacher's editing suggestions will then get you closer to excellence. If the teacher gets bogged down with your spelling or sentence structure he or she can't offer much to the quality of the overall paper.

Ways to Make Your Project Special

1. Choose a topic with depth.
2. Think about the whole magazine as you work on the individual pieces. Plan ahead.
3. Find creative ways to bring out the flavor or atmosphere that your topic suggests.
4. Think "big" when it comes to whom you might interview. Get needed help from adults to arrange your interview.

Common Pitfalls

1. Lateness!
2. Lack of serious, underlying research.
3. Not paying attention to details or guidelines.
4. Not planning ahead.
Interview

The Interview is one of the most interesting parts of your Inquiry Project. Choose someone to interview who has special expertise for your topic.

1. Appointment
   a. Decide who you would like to interview
   b. Call and make an appointment to do the interview.
   c. Tell the person about how long the interview will be.
   d. Ask if you may tape the interview.

   "Hello, my name is ____________________. I am an 8th grade student at Cincinnati Country Day School. I am doing a school project and would like to interview you about ___________________. The interview should take about ________. If this is all right with you, could we set up a time and place to meet? I would be glad to come to your office, home etc. Would it be all right to tape record the interview? Thank you for your willingness to help me with my project."

2. Questions:
   a. Make up a set of questions to ask the person you are interviewing.
   b. The questions should be:
      1. In order - flow
      2. Ask for information (No yes or no questions.)
      3. Use phrases like: "Would you explain, describe ....", "Why ....", "How....", "What in your opinion...."
   c. Hand in questions to your English Teacher to be reviewed before doing the interview.

3. Interview - arrive on time.
   a. Ask permission to tape record the interview.
   b. Bring the questions and a note pad to jot down any further questions that you think of during the interview.
   c. Sit across from the person you are interviewing.
   d. Make eye contact.
   e. Listen to the answer. Do not be thinking about the next question.
   f. Thank the person you've interviewed with a verbal thanks and a written note. You may want to send the person a copy of the interview, or your inquiry project.

4. Interview Write-up for the Inquiry Project
   a. Introductory paragraph containing:
      1. The name of the person you interviewed.
      2. The person's title, qualifications, and how he/she would be involved with your topic.
      3. Where you did the interview, date, and length of interview.
   b. The Interview itself
   c. Concluding paragraph containing:
      1. Comments on what you learned.
      2. How did it helped in your understanding of your inquiry topic.
The Inquiry Project: Evaluation Form

Student's Name: ________________________________

<table>
<thead>
<tr>
<th>Category</th>
<th>Points</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Total:</td>
<td>______</td>
<td>(50)</td>
</tr>
<tr>
<td>Language Total:</td>
<td>______</td>
<td>(40)</td>
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<tr>
<td>Math Total:</td>
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<td>History Total:</td>
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<tr>
<td>Science Total:</td>
<td>______</td>
<td>(40)</td>
</tr>
<tr>
<td>&quot;About the Author&quot;:</td>
<td>______</td>
<td>(20)</td>
</tr>
<tr>
<td>Advertisement:</td>
<td>______</td>
<td>(10)</td>
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<tr>
<td>Visual Appeal:</td>
<td>______</td>
<td>(20)</td>
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<tr>
<td>Editing and Organization:</td>
<td>______</td>
<td>(20)</td>
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<td>cover</td>
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<td>foreword</td>
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<td>bibliography</td>
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<td>(20)</td>
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<td>extras</td>
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</table>

Total Points Earned: ______ (330)

Penalties: ______ 

Grade: ______
The American Diary
An English/American History
Interdisciplinary Project

Judy Kirzner & Park Gilmore
Cincinnati Country Day School
AMERICAN DIARY PROJECT

OVERVIEW:
During the course of this year, you will develop a chronological diary covering the years between 1750 and the early 21st century. In order to provide a useful frame of inquiry and show the human side of history, you will take a generations approach. A generation is made up of all the persons born at about the same time. Each generation is linked closely to the generation before and after it. The diary entries will be divided into approximately nine generations:

1750 Colonial America and Emerging American Identity
1763-1783 American Revolution
1800-1860 Western Movement
1860-1877 Civil War and Reconstruction
1875-1900 Growth, migration, urbanization, and technology
1900-1920 Immigration, Equality, and social change
1930-1946 Alliances, World War, and The Bomb
1960's The Turbulent 60's
Beyond 2000 Issues of the 21st Century

CRITERIA
A. Students will develop their own characters for each generation. Each generation must be related to the previous generation in some way. (Child, niece/nephew, grandchild, great-grandchild, etc.)
B. The diary must be word processed or typed.
C. Several entries will have specific criteria and events to be included, however the student is encouraged to write additional entries or reactions to historical events and challenges of each generation studies.
D. Students are encouraged to include illustrations, maps, pictures, poem, and other creative artistic expressions to enhance their diaries.
E. Diaries will be graded on creativity, organization, quality, accuracy, and meeting specific criteria for each entry.
F. An updated, accurate family tree must be kept with your diary papers.
OVERVIEW: As an ongoing English and American history project, students will write a saga of American life spread over several generations of one American family from 1750 to the future. This saga will cover over 250 years—several generations of the same family as they experience and live through the history of America from colonial times and the American Revolution, through the Westward movement and the Civil War, up to the 21st century. Diary entries will reflect the history of the United States via the cultural life of that family—the day to day home life, school life, work, culture and technology of the times, as well as changes in family life and the roles of family members over the years.

GOALS: The Diary Project is designed to help students to:
A. Learn history by writing about it
B. Incorporate knowledge into a creative, personalized writing project
C. Investigate historical events and understand how they affect people
D. Experience history more concretely and less abstractly
E. Enhance word processing skills
F. Reinforce listening skills as diary excerpts are shared
G. Express themselves artistically via illustrations, maps, etc.
H. Understand the chronological sweep of American history
I. Appreciate cause and effect in history
J. Learn to plan and do research before writing
K. Write in various genres; i.e. narrative, descriptive, letter, poetry, persuasive, etc.

CRITERIA: In writing their American Diary, students will:
A. Create a family tree
B. Illustrate scenes from the diary
C. Include maps of movements
D. Include specific description
E. Be an eye witness to an historical event
F. Include appropriate scientific, cultural, and technological advances

Students will be encouraged to use their parents and other relatives as resources in creating diary entries.
American Diary
Entry #1 Life in the English Colonies & Emerging American Identities (Pgs. 33-53)
Quarter 1 Conflict of Identity
Time Frame 1750

You will randomly select a card telling which colony you are living in. After reading about your region, establish your first character. You may choose the age, background, sex, and economic characteristics of your character. Include the following: your name, information about your family, your precise location, and your job or daily routine. Remember to link your job with the geography of your colony. For example, you might be in a fishing village in the northeast or a tobacco farmer in the south. Include appropriate vocabulary which demonstrates your research such as indentured, subsistence, cash crop, plantation, pluralism, etc.

Give background about where your family came from originally and why and how you traveled to the colonies. Tell what you did in the Old World, as well as how your culture must blend and change to fit your new environment. Include a map which shows your route from Europe, Africa, etc. to your new home.

Establish a more realistic diary by telling in the first person:
why you came
how you came
where you settled (include family culture/skills prior to departure for New World)
how your culture blended with others in your new environment
include make-up of your colony and your function in it
describe religion, morals, economics, and social patterns
<table>
<thead>
<tr>
<th>Criteria for Diary #1</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Outline or organization plan and notes</td>
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<tr>
<td>1</td>
<td>Name of your person, age, sex, and family members</td>
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<tr>
<td>4</td>
<td>Precise location with detail about landscape, nearby cities, etc. Include map of your (or your ancestors) route from Europe, Africa, or wherever to your present location. Label mountains, rivers, etc.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Details about your ancestors. Begin your family tree.</td>
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</tr>
<tr>
<td>2</td>
<td>Description of your job or daily routine.</td>
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<tr>
<td>2</td>
<td>Description of the culture of your colony; i.e. religion, government, schools, social status, morals.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>** Specific historic names and events.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Correct spelling, punctuation, sentence structure, agreement.</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Describe any conflicts that you have because you are who you are. In other words, do your background traditions or beliefs need to change so that you can blend into your colony?</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Creativity and authenticity in ideas, language, and believability</td>
<td></td>
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</tbody>
</table>
American Diary
Entry #2 Growing Conflict with England (Pgs. 54-75)
Quarter 1 Conflict of identity
Time Frame 1763-1783

This entry will be written by the same person who wrote diary entry #1. This diary entry will be a series of 3 short entries in friendly letter form (See Write Source 2000) which will be dated and appear to be written every 5 to 7 years beginning with your first entry dated 1763 and your last in 1783 as peace is achieved. Because of this, you must plan ahead with an outline so that you can organize and keep the events and possibly your changing loyalty in chronological order. In order to get full credit, you must include specific acts and protest, as well as people who emerge as leaders for all sides.

As you write, you will be including the following: Description of growing tensions between your colony and England. What is your family’s position? Are they Whig (Patriots) or Tory (Loyalist) or Moderate? Why are they aligned with that side? How has your viewpoint brought you into conflict with others sharing the opposing viewpoint? Are your friends and neighbors of the same belief?

To whom do you owe your loyalty? Why? Have you changed your mind regarding this loyalty as the years are passing or because of events which occur?

Be sure that your character’s feelings are made known, and that you back up the reasons for your feelings based on where you live, what you do in that colony, and what other events in the colonies affect you. Be certain to use friendly letter form for each letter.
Criteria for Diary Entry #2

1 | Notes and outline
   | Character has aged appropriately/Family tree updated
   | At least 3 letters/well-planned choices
   | Specific protest/acts/events are mentioned
   | People are mentioned - Real, historic figures
   | Loyalty is apparent. Note changes through the years if applicable
   | Location and job are considered in your arguments
   | Entries show growing tension and conflict leading to war
   | Description of battles near your location and how this affected you
   | Friendly letter form
   | Heading
   | Salutation
   | Closing
   | Editing (Spelling, capit., punctuation, agreement, tense)

20

Extra credit: Map of battle site
American Diary
Entry #3 (Chapters 8 & 14)
Quarter 1 Conflict of Identity
Time Frame 1800-1860

This entry will have 3 parts
A. Map
B. Narrative
C. Poem

You may choose any year between 1800-1860. You must make a move from wherever you lived during your last entry to a place that is west of the Mississippi River. To begin, brainstorm your reasons for making the move. Perhaps you lived in the South, but your plantation or way of life might be destroyed by the possible end to the plantation way of life. Perhaps your master has freed you, or perhaps you want to avoid the threats of war. Maybe you live in the North and have some of the same problems. Perhaps your oppressive factory job holds no promise like the dream of free land and gold, so you move to the West to begin a new life.

Next, after reading through your history book, decide where you would like to move. Why does this place look good to you? Is there cheap land? adventure on the cattle drives? jobs in building new towns or in law enforcement? building railroads? gold? Consider the following:

Railroad- building it, using it
Marriage- some men in western towns advertised in Eastern papers for wives!
Adventure and wild open spaces vs. cramped urban conditions
Jobs-new towns to build and to work in, etc.
Free land out West
Gold Rush in California
Growth of the West- lawlessness, boom towns, cattle drives, Manifest Destiny

Entry A Map- Draw or copy and enhance a map from your last home to your new location. This should have your route noted and should have a key. This will receive a grade and should be done with care. Use color. Be sure to include states and territories that you pass through and that border your new home. Be sure there are no anachronisms.

Entry B Narrative- Who are you? How are you related to the last author? How old are you? Describe your migration:
Where did you used to live?
Why did you leave?
Where is your new home? What things attracted you?
How did you travel? Describe conflicts along the way: Indians, animals, natural hazards such as weather or terrain, breakdowns, death and disease, shortages of food, money, robberies etc.
What were the initial conflicts in settling in your new location?
### CRITERIA FOR NARRATIVE

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<thead>
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<th></th>
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<tbody>
<tr>
<td><strong>1</strong></td>
<td>Family tree is updated and complete</td>
</tr>
<tr>
<td><strong>3</strong></td>
<td>Notes and plot chart or outline</td>
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<tr>
<td><strong>3</strong></td>
<td>States who you are, how you got this diary, your age, and what year it is</td>
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<tr>
<td><strong>2</strong></td>
<td>Tell where you are moving to and why you chose it</td>
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<tr>
<td><strong>5</strong></td>
<td><em>Tell how you traveled, what your route was, and how you dealt with conflicts along the way (AT LEAST 2 II) This will be the bulk of the story.</em></td>
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<tr>
<td><strong>3</strong></td>
<td>Description of your new home and location, and initial problems in settling</td>
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<tr>
<td><strong>3</strong></td>
<td>Editing (punctuation, spelling, agreement, etc.)</td>
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</table>

### CRITERIA FOR POEM

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<tbody>
<tr>
<td><strong>1</strong></td>
<td>Evidence of notes or brainstorming</td>
</tr>
<tr>
<td><strong>2</strong></td>
<td>Edited rough draft</td>
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<tr>
<td><strong>2</strong></td>
<td>At least 8 lines</td>
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<td><strong>2</strong></td>
<td>Depicts some experience or feeling related to your move</td>
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<tr>
<td><strong>2</strong></td>
<td>Shows creativity and thought</td>
</tr>
<tr>
<td><strong>1</strong></td>
<td>Attempt at poetic devices such as metaphor, simile, personification, alliteration, or onomatopoeia</td>
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</tbody>
</table>

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272
Entry C Poem—This entry will be a poem of at least 8 lines. It must be about something, some place, some feeling, or someone you have encountered during this move. It can be either rhymed or unrhymed, haiku, acrostic, or any other form. Consider the use of metaphor, personification, and/or alliteration. Use Write Source 2000 221-236 to help you with your poem. Traditional and invented poems are demonstrated 233-236.

BE CREATIVE AND HAVE FUN WITH THIS ONE.
ADD TO YOUR FAMILY TREE

MAP CRITERIA

<table>
<thead>
<tr>
<th>1</th>
<th>Year</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Colorful and neat</td>
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<tr>
<td>2</td>
<td>Your route</td>
</tr>
<tr>
<td>1</td>
<td>Historically correct—consult maps and historical atlas</td>
</tr>
<tr>
<td>1</td>
<td>Key</td>
</tr>
<tr>
<td>2</td>
<td>Physical features—mtns., rivers, lakes, etc.</td>
</tr>
<tr>
<td>2</td>
<td>Towns, borders of states and territories, railroad lines, any historical data you think necessary</td>
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<tr>
<td>10</td>
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</tr>
</tbody>
</table>

273
American Diary
Entry #4 Chapters 11, 12, and 13
Quarter 2 Conflict of Growth
Time Frame 1860-1877 Civil War and Reconstruction

This entry will have two parts and will be written as newspaper articles which you have added to your diary. This will not be about your character personally; however, you must turn in your updated family tree which will have characters who have aged appropriately (births, deaths, marriages).

You will have options for each part:

**Part 1**
Choose any one of the following:
1. Illustrated advertisement - Could be for land, gold, women, runaway slaves, jobs, mercenaries, etc.
2. Political cartoon which represents the feelings about the war or reconstruction which would be appropriate for someone living in your location.
3. Comic strip - Illustrate some battle, Civil War event, etc.

**Part 2**
Choose any one of the following:
1. News story which tells the 5 W's - Battle, treaty, event, etc.
2. Letter to the editor/editorial
3. Feature article - weapons, fashions, interesting people, etc.

You must have both items; however, you will choose only one of these to be evaluated for a grade. Criteria will be discussed in class. There will be no checksheet in advance because there will be so much variation in the styles of the articles. If you are in doubt, compare your work to a regular newspaper.
American Diary
Entry # 5
Quarter 3 Conflict of Rights and Reform
Time Frame 1900-1920

The topic of this diary entry is immigration and the conflict that is created when our American ideal of rights for all men is "brought close to home."

In the first paragraph of this entry, tell us who you are, how you're related to the last author, where you live, why you live there, and what you do for a living. Also, fill the reader in on what happened to your family after the Civil War.

In the next paragraph(s), you will be telling the reader an anecdote about an experience you have had with an immigrant. You might even be the immigrant or might be related to this person. You can be empathetic, or you can be angry or frustrated. Think about your discussions in history and about what you have read and seen.

Discrimination of immigrants-an incident you have witnessed
Fear of foreigners which resulted in restrictions, quotas, ethnic burrows, tenements.
Overcrowding in the cities
Ellis Island
Jobs or resettlement of ethnic groups
Mixing your cultures- Ideas taken, compromises, elimination of traditions, religion
Prejudice against anyone different
Language (can't speak English)
Fear that an immigrant will take your job or cause you some problem

You will be evaluated on necessary fill-in information, the organization and good transition used in your narrative, your knowledge of the problems of immigrants, and your mechanics.
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<th>Criteria for Entry #5</th>
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<td><strong>3</strong></td>
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<td><strong>3</strong></td>
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<td><strong>20</strong></td>
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</tbody>
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278
American Diary
Entry # 6
Quarter 4 Conflict Among Nations
Time Frame 1930
1941
1946

This dairy will be 3 short entries based on events which occur during these years.

1. For each entry, explain who you are, when it is, where you are, and how you are related to the last author (Diary #5) You may be the same person in all 3 of these entries.

1930
2. Discuss the outcome of WW I in regard to the alliances which were entered into by the various nations of the world. Do you think that the United States should have entered into any alliances? Do alliances cause conflicts?

3. Describe your lifestyle during the roaring 20's.

4. Tell about the effects that the stock market crash and Great Depression have had on your family and neighbors. Has your life changed?

1941
5. Should we (U.S.A.) involve ourselves in the upheaval in Europe created by Nazi Germany? Why or why not?

1946
6. Describe your role in WW II either fighting or on the home front.

7. Describe your involvement/reactions to the Holocaust and the U.S.'s decision to use the atomic bomb to end WW II

You will be evaluated on completeness of answering all questions, your demonstration of research and accuracy, your style, and your mechanics.
American Diary
Entry #7
Quarter 4 Conflict Among Nations
Time Frame -The 1960's

In this diary entry, you will be writing to describe. You will be describing a person, an event, or a place that was important in the turbulent 60's. After you tell the reader who you are, how you are related to the last author, when it is, and how you got this diary, choose a location, person, or event to describe. Some suggestions are:

- Kennedy's assassination
- Woodstock
- Viet Nam combat
- The Democratic convention in Chicago
- In the march with Dr. King
- Martin Luther King's assassination
- At a sit-in or on a freedom ride
- At a race riot in one of the big cities
- Kent State or any other protest
- Bobby Kennedy
- Lyndon Johnson

Before you begin, you might want to look through magazines from the 60's which are available in our library or look through books which chronicle the 60's. Choose a location or event to describe. YOU ARE THERE!

You will be evaluated on your ability to make the reader feel and see what you are describing. You must use all of your senses to accomplish this.

Be sure to add to your family tree.
American Diary
Entry # 8
Quarter 4 Conflict Among Nations
Time Frame  The 21st Century

Begin this entry with a description of who you are, where you are, why you are there, your age and occupation if you have one. Be sure to tell the reader what year it is. This entry should be a very creative one. Describe the technology you enjoy both in your home and at work, the ecology, the politics, and advances in health care. Are there differences in the family structure? Do you need an extended family or are there even more single parent households? Is there a household as we know it, or are children raised in an entirely different manner? How has technology and ecology affected our fashions or social status?

You do not need to be located on Earth. You might write about interplanetary relationships and conflicts.

Be sure to add to your family tree.
CONFLICT
and
RESOLUTION
Change and progress in history have occurred largely through the process of man's engaging in conflict at various levels and searching for resolution. This theme of conflict and resolution is one very instructive and interesting lens through which we can study American history. Furthermore, this theme and its relevance to our nation's history becomes even more persuasive when it is developed in corresponding American literature and reinforced with scientific developments that have shaped that history as well. While this thematic approach results in powerfully integrated content, it further provides a medium through which integration and reinforcement of skills can occur to a maximum extent. Finally, focusing on how conflicts arise and are dealt with in history and literature will allow for students and teachers to examine the ever-present issue of conflict resolution in their day to day lives.

These are the goals and expectations of the newly integrated curriculum in the eighth grade. The English, history, and science curriculum have all been revised to varying degrees so that this theme and related questions become the central focus and the courses complement each other throughout the year in this endeavor. For example, when we focus on international conflicts and resolutions, the study of the historic decision to use an atomic weapon to resolve conflict at the end of World War II, which is captivating in and of itself, will become that much more dynamic when students simultaneously read *Hiroshima* and learn about the scientific basis of atomic energy and its various uses. On a more practical level, we have revised and expanded our focus on skills in such a way that cross curricular reinforcement is a major priority and strength. While a portion of study skill guidance will again be facilitated through the advisor groups, we are planning for our "conflict / resolution" theme to work directly into advisor guidance in such areas as social skills, peer relationships, behavioral issues, personal tensions that affect school, and goal setting. Overall, we feel that we have developed a curriculum that will be rich in content, skill development, and guidance opportunities, and will meet the diverse needs of the "whole" eighth grader in his/her final year in the middle school.
Unit I: Conflict of Identity

I. Guiding Questions
   A. What is identity and how is it formed?
   B. What factors influence one's point of view?
   C. When is loyalty questioned?
   D. What conflicts result when loyalty is broken?
   E. What is the role of compromise in resolving conflict?

II. Historical topics
   A. Make-up of colonial America
   B. The American Revolution
   C. Forming the government
      1. The Constitution
      2. Early presidents
   D. Seeds of sectionalism - intro to the Civil War

III. Related Literature
   A. Required reading
      1. Johnny Tremain (Revolutionary War)
      2. Across Five Aprils
      3. Red Badge of Courage (choice / Civil War)
      4. Killer Angels
B. Novel Nuts

1. My Brother Sam is Dead
2. April Morning
3. Last Silk Dress
4. Uncle Tom's Cabin

IV. Unit Projects

A. Introduce year long projects

1. American Diary
2. Timeline
3. Current Events
4. M.O.S.

B. Revolutions Computer Simulation

C. Constitutional Convention

D. Constitution Scavenger Hunt

E. Civil War Research project (begin)

F. Class trips

1. Glendale Civil War reenactment
IV. Related Science topics
   A. Energy and new technology
   B. Center of Gravity
   C. Inventions and Machines
      1. Windmachines, windmills, and the west

V. Unit Projects
   A. Introduce the Inquiry Project
   B. Invention project
   C. Biography hypercard project
   D. Wagon Train West
   E. Decisions, Decisions on Urban Growth
   F. Class Trips
      1. To Kill a Mockingbird at the Playhouse
      2. Downtown library for Inquiry Project research
Unit II: Conflict of Growth

I. Guiding Questions

A. What are the conflicts and benefits related to community diversification?
B. What are the conflicts and benefits related to population growth?
C. What are the conflicts and benefits related to technological advancement?

II. Historical topics

A. Sectionalism in an expanding country
B. The Civil War
C. Conflicts from westward expansion
D. The growth of urban centers
E. Industrial/technological advancement

III. Related Literature

A. Required reading

1. Best of the West Anthology (westward themes)
2. Biography choice (westward themes / inventors)
3. Call of the Wild

Novel Nuts

1. The Oxbow Incident
2. Sing Down the Moon
3. Roughing It
4. Light in the Forest
5. The Jungle
6. Anything for Billy
7. Dances with Wolves
8. A Circle Unbroken
Unit III: Conflicts of Rights and Reform

I. Guiding Questions

A. What is equality?

B. What are freedom and rights? What different forms do they take? How can one's freedom and rights be taken away?

C. What is prejudice?

D. How are conflicts over rights resolved?

E. By what paths does society change? How is this change at times caused by conflict while at other times it leads to conflict?

II. Historical topics

A. Review of rights in the Constitution

B. Diversity and equality in American society

1. Immigrants
2. Workers
3. Women
4. Citizens of color
   a. Native Americans
   b. Asian Americans
   c. African Americans

C. Reform Movements

1. The Progressive Movement
2. The New Deal
3. Social change in the '60's
III. Related Literature

A. Required reading
   1. To Kill A Mockingbird (Racism and rights)
   2. A Century of the Best Black Authors (Civil Rights)
   3. Inherit the Wind (Civil Rights / Evolution)

B. Novel Nuts
   1. Roll of Thunder Hear My Cry
   2. Let the Circle Be Unbroken
   3. Miss Jane Pittman
   4. Of Mice and Men
   5. Puddin' Head Wilson

IV. Unit Projects

A. Skits on Individual / Group Rights

B. Civil Rights / 1960's Multimedia Project

C. Gateway: Simulation on Immigration

D. Class trip
   1. Underground Railroad / Prejudice simulation at Camp Joy
Unit IV: Conflicts among Nations

I. Guiding Questions
A. In what ways are people and nations interdependent?
B. How does this interdependence cause conflict?
C. What is a leader?
D. What responsibilities are tied to leadership?
E. How are competing interests resolved?
F. How do / should national interests extend beyond our borders and beyond the present time?

II. Historical topics
A. Why international conflicts have lead to war
   1. Spanish - American War
   2. World War I
   3. World War II
   4. Cold War
   5. Korean War
   6. Vietnam War
   7. Wars in the Middle East
B. Nuclear armament and disarmament
C. Space exploration
D. Economic realities in an interdependent world
III. Related Literature

A. Required reading

1. Animal Farm (Themes of interdependence and leadership)
2. Night (Holocaust)
3. Hiroshima (World War II and nuclear war)

B. Novel Nuts

1. The Diary of Anne Frank
2. Summer of my German Soldier
3. On the Beach
4. Secret of Santa Vittoria
5. Fallen Angels
6. The Chosen
7. Brave New World
8. The Last Mission

IV. Related Science Topics

A. The structure of the atom

B. Nuclear energy

1. Power plants
2. Medicine
3. Weapons
4. Radioactive decay

C. Space exploration

1. Laws of motion
2. Gravity
3. Orbiting
4. Satellites
5. The solar system
6. The Mars mission
V. Unit Projects

A. Modern Presidential Decisions (Role play and debate)

B. Decisions, Decisions on Foreign Policy and Leadership

C. Class trips

1. Washington, D.C.
2. Kettering Challenger Center
Unit IV  Conflict among nations

Unit III  Conflict of Rights and Reform

Unit II  Conflict of Growth

Unit I  Conflict of Identity

Conflict and Resolution
1ST QUARTER

Grammar

Pronouns
Verbs

Vocabulary
Weekly words in literature context

Literature
Johnny Tremain
Across Five Aprils
Red Badge of Courage
Killer Angels

Conflicts of Identity

Writing
1. Descriptive Narrative
2. Expository (Cause and Effect, Compare and Contrast, Report)
3. Friendly Letter

History
Comparison of colonial lifestyles
From Subject to Citizen
The American Revolution:
Causes, Characters, and Consequences
Creating the Constitution:
Seeds of Sectionism:
Into the Civil War
2ND QUARTER

Conflicts of Growth

Grammar
- Verbs
- Modifiers
- Prepositions
- Conjunctions

Vocabulary
- Weekly words in literature context

English

Literature
- Biography choice
- "Call of the Wild"
- "Beat of the West" Anthology

Writing
- Narratives
- Character sketches
- Persuasion poetry

History
- Expansion, sectionism, and war
- Conflicts from westward expansion
- The growth of urban centers
- Industrial/technological advancement

Science
- Energy and new technology
- Center of Gravity
- Inventions and Machines

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The revised curriculum is more oriented toward projects. These will include both individual and group projects during each quarter and will also involve short and long term projects.

YEAR LONG PROJECTS

1. AMERICAN DIARY

As an ongoing English / history project, students will write a saga of American life spread over several generations on one American family from pre-revolutionary times to the near future. Diary entries will reflect the history of the United States via the cultural life of that family -- the day to day home life, school life, work culture, technology of the times, changes in family life and the roles of family members over the years, and, of course, experiences with conflict and resolution at all levels. In addition to the diary as a means for students to savor the flavor of cultural history, they will also be asked to respond to significant political events of different eras in U.S. history. While this will provide one way to look at point of view toward various important events, students will furthermore be required to consider new perspectives by changing age, occupation, location, and political persuasion. The diaries will incorporate various genres of writing, including descriptive narrative, friendly letter, persuasive, compare and contrast, poetry, and cause and effect, as well as maps and other illustrations. The project will culminate with all students projecting their family one generation into the future and then creatively binding their diary into a very tangible testimony of their viewing history on a completely personal level.

2. DECORATIVE DATING

This timeline will be an ongoing class project that will literally cover time and space. At the end of each unit, students will propose and discuss events that they consider important from material covered. Several chosen events will be illustrated and added to a large timeline mural that will wrap around the room as the year progresses. The primary goals are to give students a more tangible sense of time, to show relationships between events, to evaluate the relative importance of events, to consider the non-political (social and cultural) events that have shaped history, and to review material covered. In the end, roughly 100 events will decorate the room, showing a spectrum of American history that represents everyone's interests and focus.
3. THAT WAS THEN - THIS IS NOW!

In this yearlong current events project, student groups will focus each quarter on events around the globe as well as domestic issues. For each current events day, students will find articles on events in an assigned geographic region and incorporate them into a class project or discussion. Articles and summaries will be kept in an ongoing binder for each region. Once each quarter, each group will be responsible for an oral presentation on a chosen topic related to their region. At the end of each quarter, every group will be reassigned to a new geographic region so that by year's end all students will have become involved with four different areas of domestic and international events. Conflict and resolution will be a significant and natural theme in current events as well and special focus on skills and methods of oral presentation are a primary ingredient.

4. MY OWN SCIENCE (M.O.S.)

To expand interest and involvement in science beyond the classroom, students are engaged throughout the year in interesting, self-chosen science activities. Qualifying activities include doing experiments and demonstrations, locating planets and constellations in the sky, reading science news articles or books, attending special science programs, and working on thought puzzles. Although self-selected, the work is required and a record log is kept for documenting progress. Credit for M.O.S. contributes significantly to the student's grade each quarter. The open nature of the assignment allows students to explore brand new areas and/or to pursue special interests they already have.

5. THE INQUIRY PROJECT

Starting in the second quarter, all students will consider various topics that they are interested in inquiring into and investigating further. After doing significant research on their topic, students will write articles that will ultimately comprise their own magazine on their topic. They will investigate their topic from the vantage point of each of their five school subjects and their final articles will reflect this interdisciplinary perspective. Furthermore, the completed magazines will be include a variety of writing forms, many visual supplements, and the creative spirit of each student. This is truly an opportunity for students to become experts in an area of genuine interest and display their unique interpretations in a published journal.
FIRST QUARTER PROJECTS

1. YEARLONG PROJECTS

Students will be introduced to their yearlong projects.

2. REVOLUTIONS COMPUTER SIMULATION

In this simulation, students play the role of governor of a province whose citizens are divided over whether to rebel against the nation's government. Students must grapple with the issues of loyalty, leadership, and rebellion as they decide how to deal with an internal rebellion. Connections to the American Revolution, the Civil War, and more recent revolutions are very direct.

3. CONSTITUTIONAL CONVENTION

The original meetings of the delegates who constructed our frame of government are relived in this role play of the convention. Students represent the historical characters, give speeches on their behalf, debate controversial issues, compromise at critical points, and ultimately create their own Constitution.

4. CONSTITUTION SCAVENGER HUNT

Students are challenged to solve 20 fictional legal situations and questions that require hunting through many sections of the Constitution for solutions. As a final activity, students create their own scenarios to challenge their classmates.

5. GLORY DAYS: A CIVIL WAR RESEARCH PROJECT

Students will begin this project this quarter by choosing their own topic and beginning their research. Part of the focus will be on the mechanics of the research process such as finding a variety of sources, notetaking, organizing information, acknowledging sources. This will also be an opportunity for students to immerse themselves into a facet of history that is more unusual (e.g. Civil War medicine, Cincinnati's role in the Civil War).
6. CLASS TRIPS

Students will visit and interact with the characters at the reenactment of Civil War scenes performed in late September in Glendale, Ohio.

SECOND QUARTER PROJECTS

1. THE INQUIRY PROJECT

Students will be introduced to the Inquiry Project and work with an advisor on developing a topic. This quarter will be primarily devoted to research and preliminary tasks prior to writing actual articles for their magazine. (See detailed description under YEARLONG PROJECTS)

2. BIOGRAPHY PROJECT

After reading a biography of their choice for English, students will assemble a hypercard stack that will contain written and visual information on their character. In addition to basic biographical information, students will connect their character to the theme of conflict and growth in American society.

3. WAGON TRAIN WEST

The computers are transformed into network of wagons that are headed west on the Oregon Trail. Students have a variety of decisions to make before they begin and along the way that require much cooperative working among groups that are all interdependent.

4. INVENTION PROJECT

In the past few years students designed and built compound machines which could lift a mass of 200 grams or more 50 centimeters off the floor in one minute or less with only the energy from a hair dryer. They were able to do this after working in lab with various simple machines and studying the principles of mechanical advantage and friction. The parameters for this year's project are still being developed. The invented device will be electrical and will follow lab work and study of electricity and electrical components.
5. DECISIONS, DECISIONS ON URBAN GROWTH

In this computer simulation, students play the role of the mayor of a small town that is experiencing the unexpected growth of a local industry due to a technological breakthrough in mining a nearby natural resource. The controversy over the effect of rapid commercial and urban growth on the quality of life is the focus of this project and the challenge for students to manage in their decisions as mayor.

6. CLASS TRIPS
   a. Students will see the theater rendition of *To Kill a Mockingbird* at the Playhouse on November 2.
   b. Students will spend part of a day at the downtown library to do research for their Inquiry Project.

THIRD QUARTER PROJECTS

1. GATEWAY: A SIMULATION ON IMMIGRATION

In this dramatic simulation, students are given role identities as either immigrants arriving at Ellis Island in 1900 or Ellis Island processors who came to America as immigrants ten to twenty years before. After searching for information on immigration history, students and teachers will set up Ellis Island in school and relive the various processing steps for an immigrant that either resulted in acceptance to the United States or deportation back to their country of origin.

2. SKITS ON RIGHTS

Groups of students will write and perform skits that focus on the conflicts associated with the rights of various groups, including workers, women, native americans, and african americans. The skits will focus on both historical and modern conflicts and resolutions related to these groups.
3. CIVIL RIGHTS AND THE 1960'S

Special focus will be on the turbulent changes of the '60's in many areas in this multimedia project. Students will choose a topic and assemble a hypercard stack that incorporates sound, video, illustrations, and text. These will be presented to the class as a means of sharing information.

4. CLASS TRIPS

Students will go to the Camp Joy Outdoor Education Center to participate in their exciting and intense simulation of a slave auction and the Underground Railroad.

FOURTH QUARTER PROJECTS

1. PRESIDENTIAL DECISION MAKING

At three different times during the quarter, students will simulate the process of presidents making critical decisions. The three situations are a) Wilson's predicament of whether to remain neutral or declare war in WWI; b) Truman's historic decision of whether to use the atomic bomb to end WWII; c) Kennedy's confrontation with the USSR over missiles in Cuba. In simulating all of these conflicts and the process of resolution, students will role play advisors to the president and will present alternative solutions to the same predicament.

2. DECISIONS, DECISIONS ON FOREIGN POLICY

In this simulation of foreign policy issues, students role play the leader of a powerful country that is faced with a dilemma of how involved it should get in another country's problems. Students focus on the questions of how much one country can and should intervene in another country's internal politics and how should a country choose its allies. In many instances, students confront and discuss the same international relation dilemmas leaders have struggled with throughout American history.
3. **CLASS TRIPS**

The eighth grade will spend a week in Washington, D.C. where they will see many sights related to American government and history, with special focus on topics related to the fourth quarter. Curricular highlights will include the Space and Aeronautics Museum, the newly opened Holocaust Museum, the American History Smithsonian, and possibly a side trip to the Gettysburg battlefield. On the lighter side, the group could see a performance at the Kennedy Center and enjoy a dinner/dance cruise on the Potomac River.

4. **CULMINATING YEARLONG PROJECTS**

The American Diary and the Inquiry Project will be completed and put together in their final "published" form during the fourth quarter.
SKILLS FOR THE EIGHTH GRADE CURRICULUM

READING SKILLS

Students will work on the following:

reading for enjoyment
reading actively
  - summarizing
  - paraphrasing
  - underlining / highlighting
  - sq3r method
  - outlining

identifying the main ideas
finding supporting details
adjusting one's reading rate
reading critically
  - recognizing point of view
  - predicting outcomes
  - drawing conclusions
  - making inferences
  - separating fact and opinion
  - identifying style, tone, and theme
  - questioning

proofreading
using a dictionary, context, and word structure analysis for vocabulary development
identifying elements of literature (plot, character, symbols, setting, metaphor, conflict, climax, point of view)
reading maps, charts, graphs, and diagrams accurately

WRITING SKILLS

Students will work on the following:

using the writing process
  - brainstorming
  - outlining/webbing
  - rough draft
  - editing/proofreading/revising
  - final draft
  - publishing
WRITING SKILLS (CONT'D)

mechanics of writing
- sentence structure
- writing complete sentences
- punctuation
- capitalization
- subject-verb agreement
- paragraphing (topic sentences, introductions, main body, conclusions)
- transition
- coherence

types of writing
- expository (compare / contrast, explain process, persuasive, cause & effect)
- narrative
- descriptive
- character sketch
- creative (short story, poetry, play)
- letter (personal and business)
- journal / diary
- reports
- lab reports (purpose, supporting data, data analysis, conclusion)

PUBLIC SPEAKING SKILLS

Students will work on the following:

conveying effectively their ideas, conclusions, and research
enunciation
articulation
gesturing
effective speaking posture
eye contact
appropriate volume and intonation
understandable rate of speaking
methods of oral presentation
- use of cue cards
- use of visual aids
- use of technological aids (see Technology skills)
facility with fielding questions on familiar subject matter
interviewing techniques
persuasive speaking and methods of debate
Students will work on the following:

**STUDY SKILLS /HABITS**

writing down assignments in planbook each Monday

time management
  - planning ahead
  - planning time at school

identifying and setting up an appropriate study atmosphere

maintaining a notebook or folder for organizing work in each class

labeling homework

class preparation
  - bringing materials to class
  - preparing for class to begin
  - turning work in on time

graphic organizing techniques (e.g. webbing to take notes)

memorization techniques

notetaking
  - from oral presentation
  - from written material
  - outlining
  - summarizing / paraphrasing
  - shorthand / abbreviation techniques
  - annotating
  - response journal
  - organizing and using notes

learning to judge the quality of one’s work (independently and in a group)

test preparation
  - planning time
  - multiple step approach tailored to each class
  - knowing what to study
  - active methods of preparation (making review sheets, predicting questions, using flashcards, highlighting notes)

test taking
  - reading through the test at the start
  - eliminating wrong answers
  - clarifying questions
    - understanding the focus of a question
    - breaking essay questions into parts
    - asking only appropriate questions to teachers
  - time management
  - organizing answers (e.g. brainstorming / outlining essay answers)
  - checking work
  - writing effectively (essays, identifications)
LIBRARY / RESEARCH SKILLS

Students will work on the following:

- seeing library as a comfortable extension of the classroom
- becoming familiar with fiction and paperback collection for class work
- personal enjoyment
- using the reference section effectively, including the following areas:
  - dictionaries
  - tables of contents
  - specialized indexes
  - almanacs
  - atlases
  - general encyclopedias
  - specialized encyclopedias
  - newspapers
  - vertical files
  - card catalogue / Dewey decimal system
  - Reader's Guide to Periodical Literature (location of magazines)
  - electronic reference sources (CD Rom, VCR tapes, laser discs, microfilm)
- becoming familiar with cross referencing to research
- distinguishing primary from secondary materials
- taking notes from sources
- identifying sources with correct bibliographic notation
- observing appropriate library behavior

SKILLS IN TECHNOLOGY

Students will work on the following:

Computer skills:
- using word processing software
- creating and using multimedia hypercard stacks
  - for class presentations
  - for presentation of personal research
- using a videodisc player
- using the modem as a research and communication tool
- using the CD - Rom
- scanning pictures into a stack

Other technology:
- using the camcorder / VCR
- using a tape recorder
- using an overhead projector
- using a calculator
PERSONAL / COOPERATIVE LEARNING SKILLS

Students will work on the following:

helping fellow students in appropriate ways
listening effectively to teachers and classmates
understanding a task and keeping oneself or one's group focused on a task
contributing ideas
supporting ideas with evidence
encouraging / complimenting others
accepting rewards and consequences for one's actions
taking initiative and risks
setting attainable goals
resolving conflicts / compromising
communicating effectively (with teachers and peers)
accurately evaluating oneself
developing appropriate classroom social behavior
exercising a personal and team honor code
learning to criticize constructively / learning to accept constructive criticism
developing self-discipline for group and independent work
positive class conduct

THINKING SKILLS

Students will work on the following:

asking profitable questions
evaluation / discrimination of information
- finding connections, patterns, mismatches
- classification
- identifying viewpoint, bias, fact vs. opinion, observation vs inference, cause and effect
metaphorical thinking and analysis
problem solving
- clarifying questions and / or problems
- creative thinking
- brainstorming
- evaluating alternatives
- prioritizing
- decision making
- planning solutions
- recording steps in solutions
- evaluating results
- communicating results
application / transferal of concepts to new situations
EIGHTH GRADE ENGLISH / HISTORY TEXTS AND READING

YEAR LONG TEXTS:
Armento, Beverley
McDougal, Littel (publication)
Sebranek, Patrick
Strauss, Elizabeth

A More Perfect Union
English Grammar Workbook (grade 9)
Write Source 2000
Voices from American History

FIRST QUARTER
Crane, Stephen
Forbes, Esther
Hunt, Irene
Shaara, Michael

Red Badge of Courage
Johnny Tremain
Across Five Aprils
Killer Angels

SECOND QUARTER
Hillerman, Tony
London, Jack

The Best of the West (Anthology)
Call of the Wild
Biography (choice)

THIRD QUARTER
Clarke, John Henrik
Lawrence, Jerome & Lee, Robert
Lee, Harper

A Century of the Best Black Authors
Inherit the Wind
To Kill A Mockingbird

FOURTH QUARTER
Hershey, John
Orwell, George
Wiesel, Elie

Hiroshima
Animal Farm
Night
EIGHTH GRADE "NOVEL NUTS" READING LIST

To supplement the required reading and encourage students to read independently, we have chosen books that correspond to curricular topics to broaden the students' exposure to historical literature. Students can read any books from this list and can enhance their grade through follow-up assignments determined by the teachers. We hope our reader's circle grows throughout the year and we will present the first annual "novel nut" award at the end of the year.

FIRST QUARTER
Collier, James
Fast, Howard
Rinaldi, Ann
Stowe, Harriet Beecher

SECOND QUARTER
Black, Michael
Clark, Walter
Hotze, Sollace
McMurtry, Larry
O'Dell, Scott
Richter, Conrad
Sinclair, Upton
Twain, Mark

THIRD QUARTER
Gaines, Ernest
Steinbeck, John
Taylor, Mildred
Taylor, Mildred
Twain, Mark

FOURTH QUARTER
Crichton, Robert
Frank, Anne
Greene, Bette
Huxley, Aldous
Mazer, Harry
Meyers, Walter Dean
Potok, Chaim
Shute, Nevil

My Brother Sam is Dead
April Morning
The Last Silk Dress
Uncle Tom's Cabin
Dances with Wolves
The Oxbow Incident
A Circle Unbroken
Anything for Billy
Sing Down the Moon
Light in the Forest
The Jungle
Roughing It
Miss Jane Pittman
Of Mice and Men
Roll of Thunder Hear My Cry
Let the Circle Be Unbroken
Puddin' Head Wilson
Secret of Santa Vittoria
Diary of Anne Frank
Summer of my German Soldier
Brave New World
The Last Mission
Fallen Angels
The Chosen
On the Beach
APPENDIX F

Evolutionary Stages of Curriculum Integration

and Technology integration

From “Dissolving the Boundaries” by Rebecca Crawford Burns
### Evolutionary Stages of Curriculum Integration

<table>
<thead>
<tr>
<th>VARIABLE/COMPONENTS</th>
<th>EVOLUTIONARY STAGES OF CURRICULUM INTEGRATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Parallel Disciplines</td>
</tr>
<tr>
<td>I. Curriculum</td>
<td>Content and procedures of separate disciplines</td>
</tr>
<tr>
<td></td>
<td>Individual teacher</td>
</tr>
<tr>
<td></td>
<td>Resequenced content</td>
</tr>
<tr>
<td></td>
<td>Sporadic-convenient</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>N. Instruction</th>
<th>Specialist</th>
<th>Specialist</th>
<th>Generalist</th>
<th>Generalist</th>
<th>Generalist</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Director</td>
<td>Director</td>
<td>Facilitator-direcuror</td>
<td>Facilitator</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mimetic</td>
<td>Mimetic-constructivist</td>
<td>Constructivist-mimetic</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>School</td>
<td>School</td>
<td>School and community</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IV. Classroom Culture</th>
<th>Competent</th>
<th>Competent-cooperative</th>
<th>Collaborative</th>
<th>Collaborative</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Passive</td>
<td>Passive-active</td>
<td>Active</td>
<td>Active</td>
</tr>
<tr>
<td></td>
<td>Dependency</td>
<td>Dependency</td>
<td>Dependency/self-direction</td>
<td>Self-direction</td>
</tr>
</tbody>
</table>

Evolutionary Stages of Curriculum Integration
<table>
<thead>
<tr>
<th>VARIABLE/COMPONENTS</th>
<th>EVOLUTIONARY STAGES OF TECHNOLOGY INTEGRATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>V. Technology</td>
<td>Stage 1</td>
</tr>
<tr>
<td>A. Degree of</td>
<td>Sporadic or incidental; supplements traditional subject content</td>
</tr>
<tr>
<td>Implementation</td>
<td>Planned use—Delivers same content with generic skills</td>
</tr>
<tr>
<td></td>
<td>Technology to support particular content area learning. Interactive multimedia resources are used to supplement traditional print and video-based materials.</td>
</tr>
<tr>
<td></td>
<td>Technology is used to support investigation of particular content areas. Some students use technology to organize and present work for teacher assessment.</td>
</tr>
<tr>
<td>B. Relationship to Curriculum</td>
<td>Stage 2</td>
</tr>
<tr>
<td>Technology Role</td>
<td>Technology-based resources are used by students to support investigation of particular content areas.</td>
</tr>
<tr>
<td></td>
<td>Technology use focuses on its application to information organization, analysis, and presentation. Content-based resources such as CD-ROMs and Web sites support student investigation of subject areas. Students access and use real-world resources—such as national and business Web sites—to support their investigations. Technology is used by teachers and students to produce instructional and project artifacts.</td>
</tr>
<tr>
<td>C. Technology Role</td>
<td>Subject related, presents information in a new way, extends curriculum</td>
</tr>
<tr>
<td>Supports existing activities</td>
<td>Stage 3</td>
</tr>
<tr>
<td>D. Teacher Role</td>
<td>Peripheral use of technology</td>
</tr>
<tr>
<td>Nonuser</td>
<td>Teachers model the use of technology</td>
</tr>
<tr>
<td>E. Student Role</td>
<td>Passive</td>
</tr>
<tr>
<td>Passive</td>
<td>Some students actively engaged in using technology for research, organization, artifact production</td>
</tr>
<tr>
<td>Evolutionary Stages of Technology Integration</td>
<td>Stage 4</td>
</tr>
<tr>
<td>Planned, integral to accomplishing project tasks</td>
<td>Technology use causes a shift in content emphasis, instructional delivery, and assessment. Teachers and students use technology to focus on enhancing problem solving, communication, and organizational skills. Technology is used to present student work in an authentic, real-world context.</td>
</tr>
<tr>
<td>Technology planned, integral to students accomplishing project tasks</td>
<td>Technology is used to present student work in an authentic, real-world context.</td>
</tr>
<tr>
<td>F. Student Role</td>
<td>Peripheral use of technology</td>
</tr>
<tr>
<td>Passive</td>
<td>Some students actively engaged in using technology for research, organization, artifact production</td>
</tr>
<tr>
<td>Evolutionary Stages of Technology Integration</td>
<td>Stage 5</td>
</tr>
<tr>
<td>Planned, integral to students accomplishing project tasks</td>
<td>Technology use causes a shift in content emphasis, instructional delivery, and assessment. Teachers and students use technology to focus on enhancing problem solving, communication, and organizational skills. Technology is used to present student work in an authentic, real-world context.</td>
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</tr>
</tbody>
</table>

Created by: Kusmo, Pat; Sun, Jeff
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