2003

The Virtual High School: an Historical Analysis of One E-Learning Model

Jill L. Sack
Seton Hall University

THE VIRTUAL HIGH SCHOOL:
AN HISTORICAL ANALYSIS OF ONE E-LEARNING MODEL

BY

JILL L. SACK

Dissertation Committee

Anthony J. Colella, Ph. D., Mentor
John Collins, Ph. D., Ed. D.
Mark Jennings, Ed. D.

Submitted in partial fulfillment of the
requirements of the Degree of Doctor of Education
Seton Hall University

2003

ACKNOWLEDGEMENTS

I would like to express my gratitude to the following people for their support and belief in me.

Dr. Anthony J. Colella, my mentor, you were my first professor at Seton Hall (many years ago!) and the reason I stayed. Thank you for guiding me towards completion of this project. Mostly, thank you for helping to change the way I think about education and for, unknowingly, helping me to become a better teacher.

Dr. John Collins, committee member, thank you for your patience and for your availability each summer that I found myself with time to work, yet with few people around the university to assist. You provided invaluable help to me along the way. Thank you for your quick responses to my questions and especially, thank you for your kindness.

Dr. Mark Jennings, committee member, former co-worker, and present principal, thank you for agreeing to serve as a reader on my committee and for taking on one more assignment when you have so very much to do. Believe me, I know. I appreciate all of your professional and educational guidance.

Dr. Daniel Gutmore, my SHU advisor, thank you for your "gentle nudges" and specifically, for that last phone call

during Spring semester of 2003 that truly was the impetus to push me along towards completion.

The Virtual High School Staff, thank you for kindly responding to my inquiries about your wonderful program. Each individual I contacted was encouraging, helpful, and congenial. I appreciate your assistance more than words can say.

To my old friends who have been there with me along the journey, you offered encouragement and an ear when I needed one. Special thanks to Jill, you were there from the beginning and through the hectic "Hillside Days." Deb, I appreciated how you always asked, "How do you do it?" It kept me "doing it."

Sue Goldstein, a heartfelt thank you for breakfast and for encouragement (not necessarily in that order).

To my mother, Elaine Gold, and my other parents, Lois and Allan Sack, thank you for your love, support, encouragement, and babysitting hours over the years. How much do I owe you?

To the most important people in my life, Michael, Jordan, and Andrew: It is with tears in my eyes and love in my heart that I say "thank you" for giving up time with me over the past ten years so that I can complete my doctoral work. From the nights I was in class, to the hours I needed the computer and no one else could use it, it's been a long journey. Thank you for your love and support.

DEDICATION

My grandmother tells a story from her childhood about paying precious, hard earned pennies to treat other young girls to the "moving pictures." She did this so that, by spending time with them, she might learn a little more English.

This dissertation is dedicated to my grandparents, Lillian and Samuel Zax, who came to America's shores with nothing but love of family and the belief that working towards an education is worth it, always.

TABLE OF CONTENTS

Chapter I
INTRODUCTION

> In a great and comprehensive view the changes in any civilized people are, in their aggregate, dependent solely on three things: first, on the amount of knowledge possessed by their ablest men; secondly, on the direction which that knowledge takes, that is to say, the sort of subject to which it refers; thirdly, and above all, on the extent to which knowledge is diffused, and the freedom with which it pervades all classes of society. (Buckle, as cited in Creese, 1941, p. 162)

E-learning is an idea that promises to restructure education by providing teachers and students with the ability to interact with each other electronically, regardless of time and distance. The technology is available, virtual schools are literally right at our fingertips, and yet most public school districts across the country do not incorporate e-learning into their K-12 environments. Perhaps administrators fear that e-learning programs are too expensive, and maybe there are other dire needs, such as school building repairs or replacing ratty old textbooks. Or, it is possible, that the idea is just too remote, still clouded with uncertainty, and before buying into something so new, some evidence of effectiveness is warranted. After all,

it's not a bad idea to wait, talk to friends, and read a critic's review before trying that unfamiliar restaurant or seeing that new movie.

To meet the needs of today's students, educational institutions have been encouraged to provide access to emerging technologies. In 1996, the CEO Forum on Education and Technology, boasting members such as Verizon, Hewlett-Packard, and Dell Computer Corporation, was created as part of former President Clinton's challenge to business leaders to promote technology as an integral part of education. The Forum's final report, "Key Building Blocks for Student Achievement in the 21st Century," was issued in June 2001, proposing six key recommendations to ensure that the nation's investment in education technology improves student achievement and benefits education. The Forum stressed the development of 21st century skills, a new set of skills necessary to prepare students for life and work in the digital age (CEO Forum Report, 2001). Recently, the National Association of State Boards of Education (NASBE,2001) reported that "E-learning will improve American education in valuable ways and should be universally implemented as soon as possible" (p.6). However, there are still impediments to the integration of technology in the classroom, and further study of successful e-learning organizations is necessary. In order to better understand the distance education choices of the future, detailed analyses of past distance education efforts is needed (Bunker, 1998).

There is one particular virtual school that has been in existence long enough to be called a success in this ever changing, rapidly growing market. Virtual High School (VHS),

a not-for-profit consortium of high schools, has successfully entered the distance education arena by providing online education to more than 200 actively participating schools in America (Pape, 2000). Students all over the country are able to log on and enroll in courses that their own districts have been unable or unwilling to provide. An examination of the VHS organization would provide a look into the possibilities that e-learning offers K-12 school districts today.

Defining E-Learning, Distance Education, and the Virtual School

The following definitions provide a frame of reference for a discussion on the concepts of online education. *Electronically delivered learning*, also known as online learning or *E-learning*, "covers a wide set of applications and processes such as Web-based learning, computer-based learning, virtual classrooms, and digital collaboration. It includes the delivery of content via Internet, Intranet/extranet (LAN/WAN), audio- and videotape, satellite broadcast, interactive TV, and CD-ROM." (Kaplan-Leiserson, 2000) E-learning is one of the most important new instructional approaches available for supporting the improvement of teaching and learning in America's K-12 schools today (Blomeyer, 2002).

The terms *distance education* or *distance learning* have been applied interchangeably to a great many programs, providers, audiences, and media (Sherry, 1996). Holmberg (1977) defines distance education as "that which covers the various forms of study at all levels which are not under the continuous, immediate supervision of tutors present with their students...but which benefit from the planning,

guidance, and tuition of a tutorial organization" (p. 9). In distance education, students are physically separated from the institution that sponsors the instruction (Rumble, 1989).

The United States Distance Learning Association (USDLA, 2000) defines distance learning as the acquisition of knowledge and skills through mediated information and instruction, encompassing all technologies and other forms of learning at a distance (USDLA, 2000). Recent technological developments have broadened this definition to include programs that can be either time and/or distance insensitive (Barker & Dickson, 1996). Typically, distance learning had referred to the delivery of instruction in real time, or in a synchronous modality. Here, students and their instructor are separated by distance but can communicate with each other at the same time. Interactive television and computer conferencing are examples of synchronous delivery. These programs are said to be distance insensitive. More and more, distance learning programs are being offered in an asynchronous modality. Asynchronous programs are both time and distance insensitive. The Internet and the Web have given us the potential to communicate across distances, as well as gather and download information, at our own time convenience. Electronic mail and Internet courses are examples of asynchronous distance education. Distance learning also refers to the use of electronic telecommunications equipment such as cable transmissions, fiber optics, satellites, telephones, and televisions to send instructional programming to learners (Opitz, 1996). The definition of distance education is broader than and entails the definition of e-learning (Kaplan-Leiserson, 2000).

A Virtual School is an educational organization that offers K-12 courses through Internet or Web-based methods (Clark, 2001). Virtual schools typically provide online courses to K-12 schools and post secondary institutions. A virtual high school is defined as a state approved and/or regionally accredited school offering secondary courses through distance learning methods that include Internet-based delivery (Clark, 2000).

Statement of the Problem

The outlook for e-learning in American schools has changed significantly due to the rapidly evolving telecommunications industry. A paradigm shift in the way we educate students is currently underway and the increasingly accessible World Wide Web now makes it possible for educators and learners to communicate from anywhere just as if they were together in the classroom. It is hard to imagine that our schools will remain unaffected by recent technological changes. The purpose of this study is to investigate the historical roots of one particular e-learning model operating today: the Virtual High School. This research proposes to collect and analyze the literature on the Virtual High School to provide a resource for those seeking guidance in similar educational pursuits. Virtual High School is a network of American high schools which participate in online educational, academic courses, called NetCourses, offered by the organization. Through research and analysis, this study will provide a description and interpretation of the VHS program in an effort to historically place the school among both past and present distance learning situations and

trends. The approach of this study is framed in the belief that distance education, particularly e-learning, can and will revolutionize our education system. A study of the VHS's history may help to explain the present and, possibly, predict the future.

Significance of the Study

As we begin the twenty-first century, e-learning, as part of the field of distance education, is experiencing a period of rapid growth. Public education, however, remains tied to the organizational paradigms of early America. If ever there was a chance to improve schooling and provide a better education for our students, it is now. The Virtual High School offers the promise of reaching and educating students regardless of where they live and which schools they attend. It allows learning to be asynchronous, provides access to courses that might be otherwise unavailable, and promotes collaboration and interaction among participants. This may be an opportunity to "level the playing field" for students around the nation.

Predictions about the future impact of e-learning on education and training in general come from academic and popular publications. If and when these predictions materialize, new distance educators and providers will be searching for guidance in their new educational pursuits (Bunker, 1998). A close look at the history of one effective online education program would provide this guidance and perhaps encouragement to those hoping to implement online courses in K-12 schools.

The concept of e-learning promises to revolutionize the

way in which we educate our students. And yet, historically, many individuals have prophetized about the impact of any new technology on education. Consider the quotes from Todd Oppenheimer's *The Computer Delusion* (1994) that describe the relationship between technology and education:

> In 1922, Thomas Edison predicted that the motion picture is destined to revolutionize our educational system and in a few years it will supplant largely, if not entirely, the use of textbooks.
>
> In 1945, William Levenson, the director of the Cleveland City School's radio station, claimed that the time may come when a portable radio receiver will be as common in the classroom as a blackboard.
>
> Forty years after that, B. F. Skinner wrote, I was soon saying that, with the help of teaching machines and programmed instruction, students could learn twice as much in the same time and with the same effort as in a standard classroom.
>
> Ten years later, President Bill Clinton campaigned for a bridge to the twenty-first century where computers are as much a part of the classroom as blackboards. (p. 1)

Integrating technology into schools was often met with optimism and yet usually followed with disillusionment. Early implementation of computers into schools included, at best, drill, tutorial, and simulation programs which perpetuated the traditional practice of schooling rather that revolutionize it (Hollenbeck, 1998). Yet, it is now the information superhighway, which offers us the promise and convenience of e-learning, that stands ready to revolutionize

education. Many educators believe that the real challenges and opportunities in our schools lie not with technology, but with information. The real revolution is information and communication. Who is using the new technology? (November, 1998). Today, there is high political and public interest in e-learning and distance education, most likely due to both the rapid rate at which educational technologies are expanding and the new instructional opportunities at hand.

The significance of this research lies within the belief that more and more schools have begun to accept technology as a means of educating students. An increasing number of schools have connected to and begun to use the resources of the Internet and the Web (Barker & Dickson, 1996). The most successful learners, educators, and administrators will implement and use the new technological tools that support the application of e-learning.

It is important to recognize the past contributions made to the field of distance education. To that purpose, VHS, a well-documented online virtual school program, was chosen as the focus for this study. VHS is the oldest virtual high school in the United States, and in the world of educational technology, longevity speaks for itself. Educational movements have come and gone, and an understanding of the history of one particular e-learning program may lead to conclusions about which components make a distance learning organization effective. An examination of Virtual High School's history may help educators to understand why or why not current e-learning programs will prevail. This research may also lead to findings about the practices of online education in America's schools in regards to what kinds of

programs are actually being used, and within which school systems they currently exist .

Theoretically, this study will contribute to the growing research base in the area of educational technology. This study is also likely to have implications for educators and administrators wishing to implement online distance learning programs within their schools. Education leaders must understand the promise of e-learning and virtual schools so that sound decision making and effective implementation is possible. Students' access to e-learning programs will depend upon the knowledge, consideration, and approval of local school leaders.

Business leaders will also benefit as the private sector becomes increasingly involved in the business of education. The research holds implications for any individuals wanting to gain a greater understanding of the opportunities afforded us in online education. It appears that although there has been rapid growth in the use of e-learning systems, there remains a lack of understanding of the foundational literature in the field or in current or historical research and practice. Knowledge of previous research and practice could provide much needed guidance to this expanding field (Bunker, 1998).

Limitations of the Study

This study is qualitative in nature and its purpose is to provide historical analysis regarding the forces which have affected the Virtual High School. Subjectivity is a potential limitation of the selection and interpretation of data.

Distance learning systems have had a much greater and more well-established presence in higher education than in K-12 environments (Owston, 1997). E-learning is still a trial-and-error experiment in many K-12 districts. Distance education programs were initially developed at the post-secondary level, and are only recently being used at the K-12 level (Sherry, 1996). Thus, it was determined that only one well-documented e-learning organization, VHS, would be examined in this study.

Many important issues stem from the characteristics of distance learners, whose aims and goals may be quite different from those of traditional students. A further limitation of this study is the possible bias of these students.

Research Questions

This study will investigate the early influences that shaped the course of the Virtual High School's policies and practices. The following research questions are posed to guide the research and further clarify the nature of the study. These questions will be answered using several data sources.

1. What social, economic, and political forces influenced The Virtual High School model of e-learning?
2. How effectively does the Virtual High School meet the needs of students from participating high schools?
3. How effectively does the Virtual High School meet the needs of teachers from participating high schools?
4. How might educators and education leaders benefit from guiding the development of e-learning strategies in

their own schools?

5. What changes in the field of online distance education in the area of K-12 may be anticipated in the future?

Organization of the Study

C. M. Charles (1998) explains that "descriptive, historical research sometimes serves no end except to satisfy a desire to know, but not infrequently it provides a basis for decision making" (p. 242). This study is an attempt to identify and describe the influences that have affected the implementation of one particular distance education program. This study is likely to have some implications for those individuals and institutions involved in the decision making process regarding online education.

Historical research seeks to select facts from primary and secondary sources and provide an explanatory framework by interpreting both new and old data. "Historical research looks intently at the currents and countercurrents of present and past events and at human thought and acts and seeks to trace them, with the hope of discerning dynamics that add rationality and meaning to the whole" (Leedy, 1992, p. 173).

According to the historical, descriptive method of qualitative research, this study will utilize a variety of primary and secondary source data. The materials used will include books, journals, documents, doctoral dissertations, newspaper articles, electronic publications, and government reports. The researcher will also make telephonic inquiries regarding the VHS program with members of the school's staff. A historical analysis of both primary and secondary materials will be used to examine and critically analyze the events

that shaped the Virtual High School model of e-learning.

Chapter II

REVIEW OF THE RELATED LITERATURE

In order to place VHS in an historical context, the review of the literature will explore the various trends in distance education. VHS employs a model of e-learning, which is actually a subtopic of the broader field of distance education. The review of the literature begins with a look at distance education's beginnings, correspondence study and university extension, in an effort to provide a foundation for the research. This chapter also provides a review of the available literature on VHS.

Early Correspondence Study: Distance Education is Nothing New

The roots of modern distance education systems lie in the area of correspondence study. In *Distance Education: A Survey and Bibliography*, Holmberg (1977) states, "Historical evidence makes it fairly safe to state that distance education (in the form of 'pure' correspondence study) was created to give those a chance to study who could not go to ordinary school or university for financial, social, geographical, or medical reasons" (p. 17). In reviewing the literature on distance education and e-learning then, one must look at the history of correspondence study and its connection to organized educational institutions.

The origins of correspondence study actually lay in Great Britain's nineteenth century educational environment. A

brief explanation of earlier centuries provides a summative background. Before the 13th century, there was little concern about formal education. Education was provided and controlled by the church, and few people were educated in the monastic schools. During the 12th century, both teachers and students emerged, and the universities of the Middle Ages were formed and became popular. The students were not recruited from any particular social class and an awakening of a desire to learn occurred. In the Middle Ages, universities were open to all, and anyone wishing to learn could attend the university.

In the eighteenth century in England, newspapers began to be published and school was held on the one day a week when people had time to study and read. Encyclopedias, study circles, mechanics' schools, libraries, and free political gatherings emerged during that century and were symbolic of a new "spirit" in English life (Creese, 1941). By the nineteenth century, English universities had become "bastions of the privileged" (Watkins & Wright, 1991, p. 2). At that time, working class groups in Great Britain once again began to show a deepening desire to learn and enrich their lives. The British extension movement was shaped by the rigid English education system. Woytanowitz (as cited in Watkins & Wright, 1991) said that "the Victorian social structure and the failure of the government to adequately provide state-supported educational opportunities, its problems foreshadowed those Americans would later face: inadequate funding, uncertain support of university administrators, and faulty criticism or indifference" (p. 2).

The rise of university extension and correspondence

teaching began about the middle of the 19th century and was a return to old ideals expressed in the endowment deed of Clare College, Cambridge: "To the end that knowledge, a pearl of a great price, when they have found it and made it their own by instruction and study, may not be hidden under a bushel, but be spread abroad beyond the university and thereby give light to them that walk in the dark byways of ignorance" (as cited in Bittner & Mallory, 1933, p. 10). Bittner and Mallory (1933) explain that in England, the movement to extend educational opportunity first took the form of university extension, rather than correspondence study. Here, a traveling circuit would be organized in which professors would provide instruction at various sites. The intent of university extension in England was to reach the needs of the working class. In 1850, William Sewell, a fellow of Exeter College, asked that instruction be offered to all classes of society. Both the University of Cambridge and the University of Oxford were also called upon to encourage general adult education courses.

It is believed that James Stuart, then a fellow of Trinity College, and later a professor of Mechanics at Cambridge University, was among the first to call for university extension in a letter to members of the University of Cambridge. Stuart (as cited in Bittner & Mallory, 1933) requested the accessibility of education to "all, but especially those most desirous and whose circumstances most prevent their getting it" (p. 12). Eighteen months after the letter was written, the University Extension System was inaugurated officially at Cambridge (Bittner & Mallory, 1933). In its beginnings, the university extension system

made a university education available to people who previously had had no direct access to the Universities, and for middle and working class people for whom, until then, the Universities had been in a world removed (Creese, 1941). In *University Extension*, Shannon and Schoenfeld (1965) explain that the mission of the university extension experience is to bring campus and community together, enriching the life of both.

Stuart used the written word to replace the spoken word through a correspondence system. He developed a syllabus and examination sheets to provide printed lessons for which he conducted instruction through the mail. This correspondence system is credited by some as being the foundation for correspondence methods that are still being used today (Bittner & Mallory,1933; Tuman, 1993). In England, after the establishment of university extension, the idea of home study was organized and encouraged.

In a review of the literature, Tuman (1993) notes that the first public announcement of a distance education activity was actually found in the March 20, 1728 edition of the *Boston Gazette*, in which Caleb Phillips publicized shorthand lessons by mail. In 1833, a Swedish newspaper advertised an opportunity for tuition (teaching or instruction) in composition by mail (Tuman,1993). These appear to be the first two advertisements for distance education programs. Both offered instruction, though they may have been self-instructional programs since neither advertised communication between a teacher and pupil.

In 1840, Sir Isaac Pittman of Bath, England sent postcards to students in an effort to teach principles of his

shorthand system. The students were asked to transcribe Bible passages to shorthand and return their work to Pittman for correction. Three years later, the Phonographic Correspondence Society was formed to take over the responsibility of correcting Pittman's shorthand lessons. This was the beginning of what became known as the Sir Isaac Pittman Correspondence Colleges (Tuman, 1993). Sir Isaac Pittman is often referred to as the first modern distance educator.

In 1856 Charles Toussaint, a teacher of French, and Gustav Langenscheidt, a German writer, founded a school for the teaching of languages by correspondence. At first only French was offered, then English and other languages were added. The Toussaint-Langenscheidt method involved sending each student a printed letter containing drill in grammar, exercises in composition, and an installment of a continued story in the language taught. Beneath each word of English, for example, was a phonetic rendering of its pronunciation and beneath that its translation into German. Following this was a translation of a German passage into English. The student was urged to give himself constant drill in pronunciation aloud, and was expected to forward a written recitation each month to the instructors, by whom it was gone over and returned with corrections, comments, and suggestions (Noffsinger, 1926). Toussaint and Langenscheidt are credited with forming the first organized distance education school.

In the United States, Anna Eliot Ticknor founded the Society to Encourage Studies at Home in 1873. This Boston, Massachusetts-based correspondence organization attracted more than 10,000 students in 24 years. Most of the

participants were women of all classes who corresponded monthly with instructors. Ticknor operated out of her Boston home and stressed a personal student-teacher relationship by both grading and commenting on students' work. The curriculum was classical and included guided readings and frequent tests (Watkins, 1991). The Society to Encourage Studies at Home was recognized in *Harper's Weekly* in 1883 as well as other publications such as the *New York Tribune*. It is thought to be the first correspondence program of study in America. Ticknor became known as the "mother of American correspondence study" (Verduin & Clark, 1991). Bittner and Mallory (1933) have suggested that The Society to Encourage Studies at Home may have declined in popularity at the turn of the century because it failed to adjust course material to student needs.

In 1890, Dr. William Rainey Harper was recruited to organize the new University of Chicago. He brought with him his passion and support of correspondence study and planned that the university would have a correspondence department as part of its institution. He created five divisions in the university: (a) the University Proper (Colleges and Graduate Schools); (b) Libraries, Laboratories, and Museums; (c) the University Extension, including Correspondence Teaching; (d) the University Press; (e) University Affiliations. The University Extension Division was the first of its kind in an American university. The Extension Division included five departments: lecture study, class study, correspondence teaching, library, and training. The University of Chicago opened in 1892 and, at that time, registered its first student in the correspondence program (Bittner & Mallory,

1933). Dr. Harper was the first president of the University of Chicago.

In 1891, Thomas J. Foster, editor of *The Mining Herald*, an eastern Pennsylvanian newspaper, began offering a correspondence course in mining and the prevention of mine accidents. He hoped to provide mine inspectors with mine safety courses necessary for the then required certificate of competency. Foster's business grew into the International Correspondence Schools of Scranton, Pennsylvania, which reached an enrollment of more than 2 million students by 1920 (Rose, 1991). He began to offer courses on other subjects as well. Foster's efforts began the teaching of vocational and technical skills at a distance (Verduin & Clark, 1991).

Illinois Wesleyan University became the first American university to offer a correspondence program in 1877. The university's model offered bachelor's, master's, and doctoral degrees through a series of courses to students who were unable to attend traditional classes due to professional obligations or prohibitive financial situations. The Wesleyan Board eventually recommended that the program be terminated in 1906 due to a lack of "sufficiently high standards of excellence" (as cited by Cates, in Watkins & Wright, 1991).

The University of Wisconsin became the next American institution to establish a Correspondence Teaching Department in 1906. In 1907, Charles R. Van Hise, president of the University of Wisconsin from 1903 to 1918, asked the state legislature for a $20,000 grant for university extension work "under which the university goes out to the people" (Shannon & Schoenfeld, 1965). Van Hise had been an extension lecturer

at the University of Chicago from 1892 to 1903. He believed that the University should serve all the people of Wisconsin. Since Wisconsin residents already spent hundreds of thousands of dollars on correspondence courses, it made sense that those courses be taught through the University of Wisconsin itself. Also in 1907, Dean Louis E. Reber became the director of the new University Extension Division. Together, Van Hise and Reber led Wisconsin to the forefront of American distance education.

In the University's 1906 catalog, an announcement was made to point out the advantages of correspondence courses: individual contact with instructors, positive use of one's spare time, convenience of working at home, and promotion of the virtues of self-reliance and self-determination. The University Bulletin (cited in Watkins, 1991) offered two correspondence courses that year: one in elementary mathematics and one in mechanical drawing. Van Hise appointed William Lighty, a St. Louis social worker to be director of correspondence instruction. Lighty headed the Correspondence Study Department, which offered 150 courses. Over the next 10 years, the Correspondence Study Department at the University of Wisconsin registered 24,555 students. As new inventions and technological change demanded the retraining of adults, the University worked to do its part in educating individuals and helping them to adjust to the changes around them (Watkins, 1991). The University of Wisconsin had become a model for other universities by promoting university extension and correspondence study. Theodore Roosevelt praised the university for its service to the state.

In *University Teaching by Mail* (1933), Bittner and Mallory wrote:

> Correspondence teaching is but one illustration of the introduction of relatively new purposes and new methods. It is a result of the pressure of new ideas not only among university administrators and school men, but among the public at large. It epitomizes one of the broad changes of the last fifty years, that change in attitude which makes mass education, or schooling of very large groups, an accepted practice, not merely of a few organizations especially designed for the purpose, but also of nearly all institutions of whatever type. The demand for education, training or information is pervasive, through our whole western civilization. It reaches the university as well as the school, the factory, and the shop. And the university in part gives up its aloofness and tries to meet the demand of individuals widely scattered, distant from the 'seat of learning,' of masses desirous of learning wherever they may be. (p. 49)

Leaders in the new field of university extension were pioneers in setting policy. Directors of extension programs, like Harper and Van Hise, offered correspondence courses in almost any subjects for which they could find instructors willing to try the method (Bittner & Mallory, 1933). They were eager to meet the demand of students and often offered courses through correspondence study before an actual policy was set. Questions arose however, as the universities tried to respond to popular demand and uphold traditional institutional image at the same time. It was difficult to

try new methods and ideas for some students while others were resistant to change and longed for the honored traditions of past years. Bittner and Mallory (1933) rhetorically asked, "Why should the university offer its ancient A. B. degree for home study in Latin and Greek? How does it come that literature and art have fallen to the absurd estate of commodities requiring advertising and postal shipment?" (p. 53)

The universities were not the only educational institutions promoting the principles of correspondence study. In the early 1900s, there began a more general use of home study courses across America. Many of these courses were designed to supplement and support the curricula of rural schools. American elementary schooling by correspondence began in 1906 at the Calvert School in Baltimore, Maryland (Verduin & Clark, 1991). In 1922, the local high school in Benton Harbor, Michigan could not employ instructors for certain trade and vocational courses. The school system developed an agreement with a commercial correspondence school to teach these courses to their students via correspondence study (Creese, 1941).

Distance education, via correspondence study and university extension programs, was widely accepted by the start of the twentieth century. Many American colleges and universities began to develop some form of distance education using the University of Wisconsin as their model. Distance education programs were recognized as an effective means of instruction.

And so, it appears that distance education programs are really nothing new. Over the course of many years, students

have sought their independence, for one reason or another, in the form of distance education programs. Often times, it was convenience and flexibility that drove students to enroll in correspondence courses. Are today's e-learning opportunities really any different? What, if anything, is similar in regards to current programs' effectiveness and teacher/student satisfaction?

The Incorporation of Instructional Technology Through Electronic Communications

The earliest form of distance education has been traced back to correspondence courses in Europe. Correspondence study courses are both time and distance insensitive. Traditionally, these courses operate in an asynchronous modality since students enrolled in these types of courses can study at their own time and at their own pace (Barker and Dickson, 1996). Though there are still correspondence study courses available today, the reliance on the postal service, its reputation as delivering slow-paced "snail mail," and a lack of immediate response from instructors results in a less desirable form of distance education. There are new, rapidly developing technologies available to take the place of traditional correspondence study.

In the United States, advances in electronic communications have helped to determine the dominant medium of distance education (Hanson, et al., 1997). This section of the chapter explores the history of distance education and instructional technologies specific to and beginning in the twentieth century. As each new form of instructional media evolved, from radio to current interactive technologies, we

find a growing body of research that has affected the field of distance education.

Radio was invented at the turn of the twentieth century and is the oldest electronic educational medium. In 1919, the University of Wisconsin established station 9XM for instructional purposes (Thompson, Simonson, & Hargrave, 1996). William Lighty used WHA, an amateur radio station at The University of Wisconsin, for educational broadcasting in 1919. Throughout the 1930s and 1940s, there were approximately 20 radio stations, many affiliated with universities, that dedicated their programming to distance education (Tuman,1993).

The Federal Communications Commission (FCC) was established in 1934. The FCC allocated AM stations to use educational programming beginning in 1940. FM radio began educational broadcasting in the 1950s (Verduin & Clark, 1991). In 1941, James Creese wrote: "Lately, new instruments for education have been provided. A new audience, fabulously great, but still elusive and inert, has been made by the radio" (p. 57).

There were great hopes that instructional radio would result in educational growth. In 1925, the University of Iowa's Bureau of Correspondence Study offered five radio courses in commerce, sociology, education, English, and political science (Watkins, 1991). However, popularity for the radio courses waned after 2 years and by 1928, the courses were no longer being offered. In 1945, William Levenson, the director of the Cleveland City School's radio station, claimed that the time may come when a portable radio receiver will be as common in the classroom as a blackboard

(Oppenheimer, 1994). His hopes did not materialize.

The failure of radio education has been attributed to commercial interests. Though many people believed that radio would revolutionize education, universities were unable to compete with commercial broadcasting at the time. Watkins (1991) proposed: "Distance educators who must regularly assess the merits of new media today can learn several lessons from the experiences of early instructional radio, including a wariness for media hype and of public antipathy toward instructional programming" (p. 28). This brings to mind the many dot com educational companies that sprang up over the last decade. The commercialism sometimes associated with Internet schooling may produce similar "public antipathy."

Media hype surrounding radio programming, however, was not the only problem. The major drawback of radio as a means of delivering instruction was the lack of a two-way communications channel between teacher and student (Sherry, 1996). Though not necessarily successful, it is interesting to note that radio programming did not hinder the growth of distance education. Actually, social and political factors arose that spurred an increase in distance learning as never seen before.

The GI Bill of Rights of 1944 provided educational assistance to World War II veterans. With more individuals seeking an education after World War II, both traditional and distance education programs boomed. Since its inception, it has been the single largest educational initiative in the United States, with over $140 billion in grants or loans and a total of seventeen million college bound recipients (Davis

& Botkin, 1994). The GI Bill was perhaps the most significant governmental education act of the twentieth century and serves as a prime example of political force shaping education in America.

In the 1950s, educational television was introduced and by 1952, there were 108 television stations broadcasting in America (Tuman, 1993). In the 1960s, satellite technology emerged, and after becoming cost-effective in the 1980s, enabled the rapid spread of instructional television (Hanson, et al., 1997). In schools, interactive television brought about renewed interest in telecommunication. Interactive television is a two-way transmission between and among two or more sites. Due to the advanced telecommunications available, interactive video networks can offer academic opportunities to both students and faculty (Musial & Kampmueller, 1996). By the year 2000, one fifth of schools had access to satellite videoconferencing technology (Clark, 2000). But once again, the technology's effectiveness came into question. What, in regards to the *learning* had actually changed?

To better understand the educational system and its relation to broad social change, one should really begin with a careful study of the traditional or classical model of education (Chadwick, 1979). The traditional model of education is the teacher-learner system that has been with us for hundreds of years and continues to be the model we use. Chadwick (1979) presents 12 elements related to the process of education: The first element is the medium of information transmittal, the teacher. The second element is the decision-making process, that which decides that the

operations of the classroom are fulfilled by the teacher. Form of presentation is the third element. The form of presentation is usually oral/verbal, though may be visual/verbal. There is little else.

The fourth element is the role of the student as receiver of information. The student plays a passive role, which, as Chadwick points out, is inconsistent with the future roles students will play within society. The fact that teaching is in group form is the fifth element. Sixth, time is generally fixed to fit the length of the presentation and discussion. Seventh, the primary responsibility to learn falls on the student. The teacher is generally not responsible for what the student learns. The eighth element is the content of education, which is, for the most part, verbal information.

The last three elements are related to the evaluation component of the traditional education model. The ninth element is evaluation, a situation that allows the student to return information to the teacher. The tenth element is the purpose of the evaluation, which is set to find out exactly how much of the material the student has learned. An example might be grades, which are summative in nature. The eleventh factor is frequency of evaluation, such as grading that occurs during specific times each year. The twelfth and final factor is the basis of comparison with other students, such as the idea of normative standards and achievement tests which rank students.

Hooper (as cited in Chadwick, 1979) explains that educational technology ends up doing little else but perpetuating the traditional system of education: "It is an

abiding irony of the newer media that despite their ability to revolutionize and upgrade the quality of education, they can by the same token prolong and mirror what is already going on in school" (p.245). Distance learning, along with other educational technologies, has been perceived as attempting to improve the traditional model of education. Chadwick proposes that educators need to shift their focus from systematic approaches to new models that will be able to respond to social issues and demands.

The Twenty First Century: What do our kids need to know?

Thornburg (2002) notes that there are two fundamental characteristics of twenty first century schools that we might bear in mind: that learning is contextual and that school is a process, not a place. Long ago, workers learned their trades and developed skills in a contextualized environment. One person was responsible for the output of a complete product. The industrial age decontextualized work with advents like the assembly line, where workers had minimal skills, but yet the manufacture of items progressed. Thornburg explains that though we are now in the Knowledge-Value Era, where everything is contextual and information devoid of context is meaningless, our schools have remained in the decontextualized state of years ago. We still group students by age and teach disconnected subjects in separate classrooms. Thornburg adds that "The recontextualization of learning needs to take place within a completely new framework for education; deep systemic changes are needed, both in subject matter and teaching methods" (p. 93). We need to focus on long-term projects that incorporate an

interdisciplinary approach, providing meaningful opportunities for students. Thornburg uses the analogy of "jamming" jazz musicians who work together around a common theme.

Due to huge leaps in technological innovations during the early and mid-1990s, the U. S. Secretary of Education released the country's first educational technology plan in 1996. The plan, called Getting America's Students Ready for the 21st Century: Meeting the Technology Literacy Challenge, was put in place to prepare students for the demands created by the new century's global economy. In the fall of 1999, the U. S. Department of Education revised the 1996 plan, resulting in five new goals for technology in education. The revised plan was titled: E-Learning: Putting a World Class Education at the Fingertips of All Children (Office of Educational Technology, 2000). The goals are as follows:

> Goal 1: All students and teachers will have access to information technology in their classrooms, schools, communities, and homes.
>
> Goal 2: All teachers will use technology effectively to help students achieve high academic standards.
>
> Goal 3: All students will have technology and information literacy skills.
>
> Goal 4: Research and evaluation will improve the next generation of technology applications for teaching and learning.
>
> Goal 5: Digital content and networked applications will transform teaching and learning (p. 4).

Students will need to be prepared for life and work in the 21st century. The workforce will be part of an evolving

digital economy and today's students will be lifelong learners who must have the ability to find information quickly and efficiently (CEO Forum Report, 2001). In 1996, the CEO Forum on Education and Technology was created as part of former President Clinton's challenge to business leaders to promote technology as an integral part of education. The Forum proposed six key recommendations to ensure that America's investment in education technology brings about a positive impact on education. The Forum stressed the development of 21st century skills, a new set of skills necessary to prepare students for life and work in the digital age (CEO Forum Report, 2001). The 21st Century Skills include: digital age literacy, inventive thinking, effective communication, and high productivity.

The information superhighway, which offers us the promise and convenience of e-learning, stands ready to revolutionize education. Many educators believe that the real challenges and opportunities in our schools lie not with technology, but with information. The real revolution is information and communication (November, 1998). November (1998) also stresses the need for teamwork and collegiality. Teachers and students should no longer be isolated in their classrooms. The world has become linked by one huge network and there is no reason for students to be left behind.

New education models may include e-learning initiatives such as the VHS program, however, critics might argue that e-learning is not a truly distinct or unique concept. Historically, many individuals have prophetized about the impact of any new technology on education. In *The Computer Delusion* (Oppenheimer, 1994) the following predictions were

noted:

> In 1922, Thomas Edison predicted that the motion picture is destined to revolutionize our educational system and in a few years it will supplant largely, if not entirely, the use of textbooks.
>
> In 1945, William Levenson, the director of the Cleveland City School's radio station, claimed that the time may come when a portable radio receiver will be as common in the classroom as a blackboard.
>
> Forty years after that, B. F. Skinner wrote, I was soon saying that, with the help of teaching machines and programmed instruction, students could learn twice as much in the same time and with the same effort as in a standard classroom.
>
> Ten years later, President Bill Clinton campaigned for a bridge to the twenty-first century where computers are as much a part of the classroom as blackboards. (p. 1)

Integrating technology into schools was often met with optimism and yet usually followed with disillusionment. What is different about educational technology in the twenty first century? What is different about VHS and other e-learning models? A continued look at literature in the field may provide some answers.

Today's Distance Education Programs

In the United States today, new technologies have brought about renewed interest in distance education programs. The World Wide Web was established in 1992 as a component of the Internet that would now be able to provide

rich, interactive opportunities for multimedia delivery, with increasing access to the public. New Internet technology spurred interest among teachers and educators because they could now communicate electronically and incorporate the use of the Internet into their courses with greater ease and flexibility (Wan, 2000). Many university faculty members now use the World Wide Web as a convenient vehicle to transport course materials and curriculum. The American Open University, Nova University, and the University of Phoenix have been traditional leaders in providing distance education at the higher education levels in America (Hanson et al., 1997). There are many American colleges and universities that currently offer courses online. The effectiveness and affordability of distance education programs has also made them popular among corporate market institutions, automotive and pharmaceutical companies, and governmental agencies.

Typically, the area of K-12 education has lagged behind. Though many K-12 distance education programs have popped up over recent years, few have gained star status. Robert Tinker (2000), president of The Concord Consortium, points out that:

> Secondary education has lagged colleges and universities in using online courses because few schools have the incentives or resources to offer courses themselves. Post-secondary institutions have strong financial incentives to increase income from tuitions from distant students. High schools are chartered to serve a community and cannot increase their income by stealing students from other districts. (p. 12)

In 1988 Congress enacted Star Schools legislation. The

Star Schools, funded through the Department of Educational Research and Improvement at the United States Department of Education, looks to provide quality, cost-effective instruction and training, through distance education technologies. While the Star Schools projects are not limited to K-12 programs, emphasis is in the K-12 area where it is hoped that telecommunications networks will help to deliver improved instructional programming. Typically, the Star Schools project has involved educational programs that provide satellite delivery. The Connections 2000 Star Schools Project of Los Angeles County Office of Education is one program that connects a consortium of education and public television agencies in over 10 states across the country (U.S. Department of Education, 1995). The Star Schools program funds statewide projects as well. For example, in the spring of 1996, 56,000 hours of K-12 programming was provided to over 250 educational sites as part of a project in Iowa (Hanson et al., 1997).

One of the Star Schools project's effective distance learning practices has been the TEAMS Project. TEAMS provides teacher training through live, interactive student instructional programs. The TEAMS model gives teachers the opportunity to use new instructional methods and has provided answers for many problems associated with traditional staff development design (Lane & Cassidy, 1996).

Clark (2000) states that telecourses, delivered via broadcast TV, cable television, and videotape, are still a major source of early college credit for K-12 students. Satellite videoconferencing technology can connect classrooms to provide courses among a number of states, including Iowa,

North Carolina, and Utah (Clark, 2000).

However, many in the field believe that it's a new world since the days of computer-assisted instruction and educational Interactive Television. Linda Roberts (cited in Russo, 2001), former director of the Office of Education Technology at the U. S. Department of Education states, "In 1989, the primary delivery mechanism was satellite-delivered courses. Today, the technology delivery systems have indeed become much more affordable, much easier to use, and more amenable to meeting the needs of school districts around the country" (p. 2).

The Virtual High School

This idea of convenience is certainly promoted and evident at the Virtual High School, based in Concord, Massachusetts. Virtual High School, or VHS, Inc. is an on-line distance education program that offers students the ability to attend classes 24 hours a day, 7 days a week. This round-the-clock schedule allows students from across the United States to participate in a wide selection of academic courses. VHS is a non-profit e-learning collaborative that charges professional development tuition and an annual membership fee to all participating high schools.

VHS received funding from a 5-year Technology Innovation Challenge Grant (established in 1995) which was awarded to Hudson, Massachusetts Public Schools by the U.S. Department of Education. Funding from the grant totaled $7.5 million dollars and ended in October, 2001 (Clark, 2001). Though the funding began in 1996, VHS courses were not offered until the 1997-1998 school year. During that first year of operation,

VHS offered 29 courses to about 500 students in 27 schools located in 10 states (Kozma, Zucker, & Espinoza, 1998).

VHS is growing in leaps and bounds. In 1999, VHS offered approximately 100 courses to 2000 students (Robyler & Elbaum, 1999). By the spring of 2000, VHS was already the largest web-based high school in the country (Berman, 2000). In 2001, VHS offered more than 150 *NetCourses* to 3000 students from more than 250 participating schools (Rivais, 2001). The NetCourses focused on core and elective high school curricula, and few Advanced Placement courses were offered. VHS, a national initiative originally funded by the U.S. Department of Education, has captured the attention of teachers, parents, and students from across the country. Other virtual schools, such as CyberSchool in Eugene, Oregon, and the Arkansas Virtual High School, have been modeled after the VHS e-learning collaborative.

Originally, VHS operated as part of The Concord Consortium, a non-profit organization focusing on research development in educational technologies. Robert Tinker, president of the Concord Consortium, and Sheldon Berman, superintendent of the Hudson, Massachusetts Public Schools, created VHS with the goal of merging the best in technology with the best instructional methods (Berman, 2000). VHS was "spun off" The Concord Consortium to accommodate the school's rapid growth and so that, according to Tinker, the consortium could continue to do what it has done best, research and development (Hadingham, 2001). The Concord Consortium assisted with the VHS project, which began as research based on the idea that online courses for high school students, along with professional development for their teachers, would

result in a rewarding e-learning experience. The VHS proposal to the Technology Innovation Challenge Grant program (as cited in Kozma et al., 2000) identified the project's overall goal:

> ...to create a national consortium of schools that expands members' curricular offerings through a wide range of excellent, current, innovative network-based courses that support reform. This can be done in a way that is scalable, and can continue post-funding, while spawning independent, parallel efforts. (p. 3)

Since its inception, VHS has received program evaluations prepared by SRI International. According to VHS's first year evaluation, there were seven primary goals set forth by the Virtual High School Consortium. The goals were:

1. The practical problems of establishing and managing the Virtual High School will be solved, demonstrating that the approach is feasible for many schools.
2. Students, teachers, schools, and districts will benefit from participating in VHS courses.
3. Courses offered through VHS will be of high quality and will support reform efforts aimed at raising education standards (e.g., VHS students will become more engaged in course work and take more responsibility for their own learning; greater attention will be given to teaching for understanding).
4. Internet-based VHS courses will demonstrate some advantages (e.g., an expanded community, new kinds of courses, technology skills for students), compared to traditional courses.

5. The VHS project will become a model of how to use the Internet to deliver high school courses.
6. VHS benefits will be made available to students equitably.
7. The network-based professional development provided to participating netcourse teachers will be of high quality and will make an important contribution to the quality of the netcourses offered to students.

VHS offers NetCourses exclusively to students who are part of their consortium of high schools. In order to participate, schools must pay $6000 a year and agree to have a faculty member create and teach a VHS course. That teacher must prepare and teach an online course offered to participating schools across the country. Another staff member at the school will serve as the site coordinator, one who provides technical and administrative support to the school's VHS students. Schools must also pay $3500 for initial training of the teacher and site coordinator for the Teachers Learning Conference or NetCourse Instructional Methodology. There is an additional $1500 cost for the Site Coordinators Orientation, an 8-week online course. In return, up to 20 students from that participating school can enroll in a class offered through VHS. If another teacher at the school completes the training and agrees to teach a course, another 20 students can enroll (Leftwich, 2001). The fee for an additional course is $4000 per year.

Teachers generally propose courses at the beginning of the fall semester, a year before the class is actually offered. VHS administrators then choose courses in March and create a catalog from which students can choose three

classes. And so, VHS is a cooperative program; each participating high school contributes not only students, but teaching time as well.

The teacher training program is quite comprehensive. VHS teachers must complete the Teacher Learning Conference (TLC) which is a 26-week, 125 hour graduate level course. Using the same technology through which they will teach, instructors get a first hand feel for what students will experience (Leftwich, 1999). While participating in TLC, teachers are instructed on how to design and develop a NetCourse. VHS classes are created using a Web course design called Learning Space by Lotus, Inc. By requiring teachers to enroll in the TLC course, VHS controls the quality of the NetCourses while also exposing teachers to appropriate educational strategies and technologies (Kozma et al., 1998). Liz Pape, a VHS administrator, explains that it is essential to maintain high standards of teacher training in order to provide quality online classes. Pape (2000) explains, "VHS teachers are trained in online pedagogy. They learn to moderate online discussions, facilitate group and project-based work, and assess student learning in an online environment" (p. 1).

VHS is an asynchronous learning environment so there is great flexibility in regards to scheduling. Students may attend a traditional high school and choose to take a course outside of their regular school day. Others enroll to fulfill academic requirements. In one situation, a small K-12 school in Alabama, Monroe Senior School, faced a state takeover due to low test scores and budget cuts. Monroe began to enroll students in the VHS program, a few at a time.

Students began to improve and were excitedly competing for the chance to take more VHS courses online. Monroe Senior School now has 40 students eligible to take VHS courses, their test scores have improved, and the quality of education has changed. Though the improvement is not entirely due to VHS, those involved believe that VHS certainly had a positive effect upon the students and teachers ("The Many Faces of VHS: Who is Helping VHS...and How?," 2000).

VHS operates a web page which includes all known literature and media coverage about the school. Additional information regarding the VHS program follows in Chapter IV.

The Upsides and Downsides of E-Learning (and Distance Education in General)

The flexibility of e-learning is appealing to many educational leaders and administrators. Online learning makes scheduling classes easier and eliminates the need to find classroom space (Russo, 2001). E-learning permits students in rural or poor school districts to take specialized courses that would not ordinarily be available to them. It meets the needs of students being home schooled, dropouts, ill, and recovering students. E-learning offers programs to any students looking for nontraditional educational instruction (Chaika, 1999).

Overcrowded classrooms are a reality in today's schools. According to the 1996 Statistical Abstract of the United States (as cited in Amiri, 2000), the number of high school students in the United States is expected to increase by 16% between 1996 and 2006. Distance education programs offer opportunities for students to participate in courses although

they may not be seated in a traditional classroom at the time. The virtual classroom is another mode of distance education delivery that stands to revolutionize education. The virtual classroom takes a "real" or traditional classroom and makes it available at locations other than the actual classroom at the same time. Alternatively, course material can be "captured" electronically and archived on a Web site. Students can then access the material at any time, from anywhere (Schmidt, 2000).

Based on a report commissioned by the Distance Learning Resource Network at WestEd, a research, development, and educational services organization, it was estimated that 40,000 to 50,000 K-12 students would enroll in an online course during the 2001-2002 school year. This study analyzed virtual school activities and trends in the United States and the results were published in two reports (Clark, 2000, 2001). The findings also noted that the trend from "virtual high schools" to "virtual K-12" schools continues. The report calls the virtual school movement "the next wave in technology-based K-12 education."

Recently, according to an *Education Week* survey of state technology coordinators, it was shown that 12 states have established online high school programs and five others are developing them. Also, 25 states have given the go ahead for the creation of cyber charter schools and 32 states have e-learning initiatives under way ("Education week," 2002).

The types of virtual schools studied included university-based high schools, virtual school consortia, virtual schools operated by schools and districts, virtual charter schools operated by state-chartered entities, and

virtual schools operated by private school entities. Clark (2001) explains that a number of virtual school consortia have been created and that the consortia are national, multi-state, state-level, and regional. VHS is a consortium-based virtual school that actually operates on a national and international level. Clark (2001) notes that "VHS is the most successful collaborative or barter model of virtual schools in existence, seeking sustainability through its broad network of participating schools (p. ii)."

Researchers do not always agree that distance education programs benefit students. Actually, it seems as if there will always be those who believe that traditional, face-to-face education is the best method for all. As mentioned earlier, Bittner and Mallory (1933) asked, "How does it come that literature and art have fallen to the absurd estate of commodities requiring advertising and postal shipment?" (p. 53). Some educators hold fast to the notion that the traditional classroom cannot and should not be replaced.

Some researchers have studied the differences between face-to-face and distance courses. For example, Tiene (1997) looked at how the learning experience of students who took coursework at remote sites differed from that of students who were in the same classroom with the instructor. Tiene explains that past research has shown that challenges exist for learners at remote sites. Students may have difficulty seeing or hearing despite the latest technological sophistication. Students may also feel less inclined to participate in class discussions when at remote sites. Another issue Tiene explored is the degree to which conditions in an interactively televised classroom of this

type differ from the experience in a self-contained classroom. Social dynamics of students at remote locations were different than those in the traditional classroom (Tiene, 1997).

Tiene concludes with a discussion of the challenges facing educators associated with distance learning. Though the study focused on interactive television rather that e-learning, the challenges are similar. Despite the sophistication of communication technologies, there will always be some advantages to the traditional method of being right in the classroom with the teacher.

Robyler (1998) reviewed a sampling of comparison studies that compare the effects on students in both distance learning and traditional courses. Robyler explains that since most research on distance learning has been conducted in the area of higher education, there is a more well-established presence there than in K-12 learning environments. Robyler's findings indicate that students in the traditional course gave higher ratings toward physical environment and overall course satisfaction. The remote and host-site groups both noted problems with technical audio components during the course.

According to Robyler, the studies indicate that creating a distance learning course that is better than a traditional course presents a major challenge to course designers and evaluators. Robyler stresses that it is important for those considering distance learning implementations to carefully examine design and cost issues involved in these formats.

Similarly, Simonson (1997) calls distance learning a "dramatic idea" and cautions that it may change the way we

educate our students, but only if the experience of the distant learner is as satisfying and complete as that of the local learner. Simonson describes earlier research in educational technology, such as that of Richard Clark (1983), noting that only the content of the vehicle can influence achievement. Simonson quotes Clark's well-known remarks: "the best current evidence is that media are mere vehicles that deliver instruction but do not influence student achievement any more than the truck that delivers our groceries causes changes in nutrition" (Clark, 1983, p. 445). Clark explained that instructional media were not responsible for a learning affect, although they were excellent for storing and delivering information. Clark continues to tell educators, "Give up your enthusiasm for media effects on learning" (as cited in Simonson, 1997).

Simonson also looked at the work of Jim Finn, another technology pioneer. Finn believed that the acceptance or rejection of a new idea depends upon society's condition at the time and also upon the leader's imagination. Finn felt that by using new technologies in new ways, we can begin to identify approaches for changing society. Both Finn and Clark implied that it is not the new technologies themselves that bring about change, rather change occurs because of new ways of doing things that are enabled by technologies (Simonson, 1997). Simonson explains that similarly, educators are making claims about the way distance learning is going to change the way we educate our students. He reminds us of two important issues. One, students do not really want to learn at a distance. They prefer to be with other learners in a classroom, lecture hall, or laboratory

(Schlosser & Anderson, 1994). Second, students are increasingly demanding to be allowed to learn at a distance. This may be due to other considerations besides personal preference, such as convenience of course place and time. These are two conflicting forces that must be considered in regards to where and how an education system's resources are spent. Simonson adds that although distance learning is an exciting new field, we should not promote distance learning as the technological solution to education's problems. First, we should try to use technology to make both local and distant learning students' experiences positive and equivalent.

Additional research has supported the idea that there is a considerable difference between teaching at a distance and traditional teaching methods. Cyrs (1997) notes four areas of competence that relate to distance teaching, especially when using interactive television. These areas, which have been reported in studies using surveys and interviews, were identified as important components necessary for an effective distance learning program. Course planning and organization, verbal and nonverbal presentation skills, collaborative teamwork, and questioning strategies are areas to be considered when planning and implementing a distance education program. Cyrs stresses that distance educators must be able to show a degree of competence in these areas to ensure success.

Hollenbeck (1998) explains that computers are being given a second chance to revolutionize education. In the 1980s, computers were implemented into many schools but were most often used as drill or tutorial programs. One

particular study explored teachers' responses about how Computer-Mediated Communications (CMC) changed the educational context for their students (Fowler & Wheeler, 1995). The authors believe that participation in CMC is still low among United States K-12 classrooms. However, their findings showed that teachers using CMC did have successful experiences. Teachers' goals for students were general, yet the most common goal cited was for students to learn and appreciate cultural differences while becoming comfortable in our diverse world. Teachers reported that despite their successful CMC projects, many experienced problems with the technical aspects of the technology. Difficulty with computers, modems, software, and phone lines was frequently reported. Fowler and Wheeler (1995) suggest five categories of requirements for a successful CMC program: technical support, time, computer equipment, software, and network access. The authors add that it is also important to have dedicated, motivated students and teachers as well.

Distance learning can be both isolating and highly interactive. E-learning provides a different kind of connectedness than what transpires in a traditional face-to-face classroom and some learners are not comfortable with it (Kerka, 1996). While students may learn how to collaborate online, learners must develop new skills in order to collaborate with others at a distance. A lack of nonverbal cues may present a degree of misunderstanding if new communications skills are not taught (Kerka, 1996).

Schmidt (2000) discusses the fear of "Wal-Martization" or "McEducation" as distance education may damage the quality

of education being delivered. Schmidt goes on to say that if it is a problem, it's a potential future problem. He explains that the demand for convenient, reliable, and inexpensive products is as much a reality in the world of academia as it is in retail or food. In America today, we want convenience and we want it now. Distance education offers convenience, flexibility, and speed.

Though there are upsides and downsides to e-learning, and distance education in general, in schools today, distance learning is experiencing a period of rapid growth. In the field of education, distance learning is said to support the pursuit of life long learning for all. Distance learning is used in all areas of education including Pre-Kindergarten through grade 12, higher education, home school education, continuing education, corporate training, military and government training, and telemedicine (USDLA, 2000).

The affordability and effectiveness of new technologies has made distance education popular among a variety of user markets. The most frequent users of distance learning technologies are educational institutions (both K-12 and universities), corporate markets (including financial institutions, automotive companies, pharmaceutical companies) and government (Shah, 1999). Frost and Sullivan, an international marketing consultant and training company that monitors the telecommunication industry, reported that the growth of the distance learning market is affected by the influence of the following market drivers: (a) Speed of technological change, (b) Decline in equipment and services costs, (c) Access to any type of education, and (d) Growing acceptance of distance learning concept.

The main constraints of the distance learning market include: (a) Lack of customer familiarity, (b) Competition from traditional training methods, (c) Long sales cycles, and (d) Cannibalization among product and service categories. Shah (1999) explains that customer interest in the concept of distance education is rising quickly. As the competitiveness of the marketplace forces more employers and employees to enhance their skills, the demand for distance learning is likely to grow even more in the future.

Barker and Dickson (1996) describe ways in which recent technological changes can affect education in today's classrooms. They suggest that distance learning programs have historically focused on synchronous methods, including staff development courses for which a full time teacher is not warranted. However, recent advances in digital transmission, such as fiber optics, have been given increased attention in K-12 districts. The use of the Internet, interactive TV, audiographics, and electronic field trips are a few examples of technological tools considered to be on the cutting edge of technology in schools today.

More and more schools are connecting to the Internet and taking advantage of the information and resources available. Distance education connects teachers and students to a wide base of knowledge outside the barriers of the classroom. However, we are still in transition and most of the distance learning practices today continue to promote traditional classroom instruction. Here, the teacher remains in the role of disseminator of information. The expansion of the Internet and the Web will surely bring change to the roles of both teachers and students. Students will ultimately become

"techonauts," similar to astronauts who explore the unknown. Barker and Dickson (1996) believe that techonauts will be navigators as they explore using technology's newest tools to find, exchange, and analyze information.

Chapter III

METHODOLOGY

This research examined the development of VHS by using traditional historical research methodology. To date, no comprehensive analysis of an e-learning program has been made to determine historical trends and predict future implications. This research provided a general background of distance education, chronicled the history of VHS, and added to the knowledge base in the field. This study included primary sources of data, such as eyewitness accounts as reported by VHS participants, along with secondary sources such as published reports, articles, and evaluations. The researcher made telephonic inquiries regarding the VHS program with members of the school's staff. Records and publications available through the VHS website were used throughout this study.

Leedy (1997) states that, "The heart of the historical method is, as with any other type of research, not the accumulating of the facts, but rather the interpretation of the facts" (p. 173). Historical research is not simply telling the story, but perhaps shedding new light on some aspect of that story. Without the interpretation of events, the writing becomes merely historical narrative, and that was not the intent of this research. The methodology was used to further understanding and suggest implications through the interpretation of an historical event, the evolution of VHS.

Best and Kahn (1998) explain that those who see historical study as scientific research believe that "the historian delimits a problem, formulates hypotheses or raises questions to be answered, gathers and analyzes primary data, tests the hypotheses as consistent or inconsistent with the evidence, and formulates generalizations or conclusions" (p. 81). The general hypothesis for this historical study was: VHS is a successful e-learning program, and if implemented, or used as a model, can have a great impact upon education in K-12 districts across the country today. The research questions listed in Chapter One provided the framework for this study.

Further, Charles (1998) notes that historical research design consists of identifying who or what is to be described, selecting available sources of information, and then obtaining pertinent data from sources deemed reliable. In the present study, it was determined that VHS staff members would be contacted through telephonic inquiry in an effort to gather information and collect primary data. The process of classifying VHS as unique among e-learning programs required the researcher to speak to individuals most familiar with the program. The purpose of these discussions was to add to the critical understanding of the VHS philosophy. Primary data is used to ensure the integrity of a study and to strengthen its reliability (Leedy, 1997). Also, available sources of information on VHS, including evaluation reports, news articles, and other forms of documentary evidence were collected and analyzed.

An historical study may serve several purposes. In some cases, historical research gives perspective so that we may

take a better look at progress (Krathwohl, 1997). Here, it is the intent of the researcher to offer perspective on the field of distance learning, in the form of e-learning at VHS, so that its progress and effectiveness, can be explained. Krathwohl (1997) goes on to state that some historians use strong writing skills to adequately describe their rationale. Description is a tool these writers employ to emphasize their points. Other historians, however, "prefer to select facts and tell stories that provide an explanation or rationale, clarify a principle, or reveal a point of view, thus giving forward-looking usefulness and perspective to their work" (p. 574). Like the work of most historians, this study fell somewhere in the middle of these two ideas. The description of a virtual school, specifically VHS, was used in an effort to draw generalizations and make interpretations.

Historical research is important because it offers a sequential explanation for events that may seem otherwise meaningless. The analysis of these events so that they seem logical is the essence of history. In *The New Basics: Education and the Future of Work in the Telematic Age*, David Thornburg (2002) offers a definition of history as he expounds on the theory that we are not teaching kids the skills they will need to work in the 21st century. The author talks about the need for comfort with ambiguity as a necessary skill for future workers. Thornburg explains that history is the best way to show students how things got to be the way they are. He states:

> Ambiguity does not diminish the importance of specific skills and areas of knowledge. For example, there is an entire field of study devoted to the analysis of wild

> cards and their impact on the world: it's called 'history.' Unfortunately, many of us recall history as a required course full of names, dates, places, and battles, rather than as the story of people making decisions with imperfect information. If there is one subject fundamental to our survival in our rapidly changing world, history is it, but not as it is often taught; I remember all too clearly history teachers who felt it their duty to pump as much information into our heads as possible so that we could regurgitate it on a test. Instead, we need to see history as the story of how things come to be as they are.
>
> History reveals trends that sometimes replay themselves: Mark Twain is reputed to have said that while history may not repeat itself, it sure rhymes a lot. He was right, and the rhymes of history provide comfort in the face of ambiguity. I think of history not as a circle that repeats, but as a fractal spiral from whose eddies spring the wild cards that lead us to uncharted realms of economic and social development. (pp. 37-38)

This quote illustrates the point of historical research in the area of educational technology. It is essential for VHS, the first successful virtual high school, to be studied in order to determine exactly how things came to be the way they are, and more importantly, to try to figure out the direction in which things are going. Distance education, and, actually, all educational practices, exist in a constantly changing, diverse, ambiguous environment. There is a need to study the advances in the field of distance education in order to evaluate the impact and consider their

effectiveness in the era of constant change.

As Thornburg (2002) writes, we use imperfect information to make decisions. There are imperfections and limitations to the gathering of knowledge from such a young field of data. Distance education has deep roots, but e-learning is still trial-and-error in most K-12 school districts. Though VHS is a well-documented virtual school program, it is still considered new and innovative by many outside the field.

In seeking to understand the VHS model, the researcher attempted to include historical events and experiences that created the environment in which VHS has prospered. By placing VHS in an historical context, the researcher will be able to make predictions about e-learning and its implications for the future.

Chapter IV

FINDINGS

This chapter presents the findings associated with the research questions provided in Chapter I. Data from available primary and secondary sources were compiled to create an analysis of the VHS program and an interpretation of the school's historical impact. A summary of the annual reports from SRI International is also included. The chapter concludes with data gathered from the telephonic inquiries conducted with members of the VHS staff.

History provides perspective, but it is not without prejudice. To place the evolution of VHS as an event in the history of education, the researcher must rely on statistics, judgments, and standards that reflect the biases or prejudices of others.

Introduction

Clark (2001) calls the virtual school movement the "next wave" in technology based education. If this is the case, then the Virtual High School, administered by VHS, Inc., is the crest of the wave. VHS serves as the model for the cooperative method of virtual schooling.

As discussed in Chapter II, VHS is an asynchronous, on-line, distance education program. VHS is a non-profit e-learning collaborative that began in 1996 with a 5-year, $7.5 million federal Technology Innovation Challenge Grant awarded to the Hudson, Massachusetts Public Schools, working in

conjunction with the Concord Consortium. The funding from the grant ended in October, 2001, and the school is now operated by VHS, Inc., a nonprofit cooperative. VHS represents the Concord Consortium e-learning Model, which can be used to create and operate courses online.

Types of Virtual High Schools

VHS is the leading model of a cooperative virtual high school, but there are several categories of virtual schools. These include: state-sanctioned, state level virtual schools, college and university-based, consortium and regionally-based, local education agency-based, virtual charter schools, private virtual schools, and for-profit providers of curricula, content, tool, and infrastructure (Clark, 2001). Virtual schools have many different purposes and characteristics. The implementation of virtual high schools appears dependent on various factors, including the "structure of higher education, and of associated independent high schools, traditional state roles in K-12 education, and state experience with policy issues such as equitable access" (Clark, 2000, p. 1). Obviously, network access is an important variable when considering virtual schooling. Internet connectivity is a must. Updated lists of virtual schools currently in operation are available online, for example: http://www.drln.org/virtual.html provides a current listing (Clark, 2001).

VHS as a Model

VHS is a consortium-based virtual school that operates through a large network of participating high schools.

Though several virtual school consortia have been created over the past few years, VHS is the oldest and most successful. By incorporating a cooperative structure, VHS has become a key player in the virtual school movement.

VHS has grown considerably since its inception in 1997. As noted above, VHS offered approximately 100 courses in 1999 and expanded its offerings to 150 courses in 2000-2001. Likewise, the number of participating students grew from 2000 in 1999 to 3000 by 2001. During the 2001-2002 school year, there were 3,736 participating students. This represents an increase that demands attention.

Again, VHS uses a *barter* model so that in return for membership, participating schools may enroll up to 20 students per semester. In order to become a member of the consortium, schools must pay $6000 per year and agree to have a faculty member create and teach a VHS NetCourse. Schools must also pay $3500 for initial training of the teacher and site coordinator, one who provides technical and administrative support to students. There is an additional $1500 cost for the Site Coordinators Orientation and an optional $4000 fee if another teacher completes the training and agrees to teach another course. In that case, another 20 students would be eligible to enroll. In this way, VHS is a cooperative program with participating schools contributing both students and teachers. The fees are in place to provide sustainability.

Teachers are trained through the Teacher Learning Conference (TLC), which is a 26-week, 125 hour graduate level course. VHS administrators stress the importance of teacher training in order to provide quality on-line courses.

Teachers are guided using the social constructivist approach in which they must create their own understanding based on on-line discussions and collaborations (Haavind, S., Rose, R. Galvis, A., & Tinker, R., 2002).

VHS offers great flexibility in terms of scheduling. Students often attend traditional high schools and choose to take a NetCourse outside of their regular school day. Other students enroll to fulfill academic requirements that may or may not be available in their home school districts.

The idea of collaboration- people learning to work and communicate effectively with each other- is a key component of the VHS program. Comeaux (2002) explains that as the interactive technology movement continues to grow, our efforts must focus on communication and learning as complex collaborative processes. And so, VHS's unique system has become the leading model of virtual schooling. There are many who wish to deliver instruction on-line, and therefore, there is considerable interest in the VHS method and organization.

Summary of SRI Evaluations

VHS, in affiliation with the Hudson Public Schools, contracted the Center for Technology in Learning at SRI International to provide external assessment for their model. Evaluation rubrics have been developed by both VHS and SRI to provide effective assessment. By using continuous internal needs assessment along with external evaluation procedures, VHS has put an outstanding assessment tool in place (Clark, 2000). The following is a summary of the evaluations and reports generated by SRI and maintained in the VHS

literature.

SRI: Years One and Two

The first year that classes were offered by VHS, 1997-98, was a successful school year. The previous year, 1996-97, was a time for VHS administrators to iron out any difficulties so that NetCourses could be offered the following year. During the 1997-98 school year, VHS offered 29 courses to about 500 students in 27 schools around the country. At the conclusion of that year, SRI International completed its first of yearly evaluation reports. The evaluations are based on surveys of participating students, teachers, and administrators. Case studies are also conducted. Actually, the first 2 years of SRI evaluations focused on the implementation of the VHS infrastructure, quality of teachers and courses, and participants' satisfaction.

According to SRI's first report, most of the VHS students from 1997-98 were high school seniors (58%) and juniors (34%). Few were in the 8th, 9th, or 10th grade. Participation in the online courses resulted in several benefits to VHS students. The most obvious benefit is that students were able to take courses that they would otherwise not have been able to take. Sixty-two percent of the students agreed that this was their reason for participating in the project. Students also confirmed that they liked the flexible scheduling and that the opportunity to take a course from home was an advantage. The idea that a VHS course could be taken at any time, and was self-paced, was also cited as an advantage.

Students gained new technological skills and were exposed to new technology through the VHS program. Many VHS students (over 81%) indicated that NetCourses are a different way to learn. These students acquired both new knowledge and skills as a result of participating in the program. Students also reported that they are working hard in their VHS courses, and their self-assessments agreed that they learned a "substantial amount" about the subject in their VHS NetCourse.

According to the SRI surveys for 1997-98, participating students were satisfied with the quality of the VHS courses. A large majority of students expressed overall satisfaction with the VHS project in general. However, site coordinators felt that VHS students did not interact with other students and teachers as much as they did in regular, face-to-face courses.

During the first year of evaluation, large majorities of students reported that they were satisfied with subject matter in their courses and students felt that they had learned new technological skills (Kozma et al., 2000). The second year, 1998-1999, resulted in similar findings. "The most notable findings for the second year of operation are those related to the level of satisfaction with VHS expressed by participants. All participant groups expressed greater satisfaction with the VHS project overall during the second year of operation when compared to the first year of operation (Espinoza, C., Dove, T., Zucker, A., & Kozma, R., 1999, p. ii)."

SRI: Year Three

The goal of the third year evaluation was to focus more on the differences between online and regular courses. The examiners looked at both a VHS and a regular, face-to-face version of the same course. The design used was quasi-experimental; the two types of courses would be compared even though tight control was not possible. Also, randomness was not possible because students would be selecting courses, as opposed to a random assignment to a course. Four courses were identified as being taught in both forms during the winter semester of 1999-2000: Advanced Placement Statistics; Modern Classics, Living Authors; Expanding Artistic Vision Through Photography; and Pre-Engineering and Design. Two of the selected courses were academic and two were chosen because they were career-oriented courses. The four teachers of these classes, each teaching both on-line and face-to-face, agreed to participate. It is interesting to note here that this is one of the theories behind the success and satisfaction of VHS staff: teachers are able to teach both face-to-face and online versions of their courses.

To evaluate the courses during the third year assessment, the researchers interviewed the teachers, observed their classrooms and incorporated two types of measures, *key assignments* selected by the teachers and an assessment of Internet research skills. The findings showed some differences between the VHS and face-to-face courses; but there were similarities as well. In regards to student interaction, there was less student-to-student interaction in the VHS courses, while student-teacher interaction was not as positive as in the face-to-face courses. This may be due, in

part, to the technology-based problems which limited the teachers' and students' interactive experiences. As part of the third year SRI evaluation, the researchers pointed out that VHS was addressing the issues of technological limitations in an effort to support their goal of collaborative learning.

The similarities among the courses included similar goals, content, structure, assignments, and grades received. High-quality teachers taught all courses. The evaluators also concluded that "VHS students acquired the technology-based reasoning and communication skills needed for the 21st century information society" (Kozma et al., 2000, p. v.).

SRI: Expert Panel Review

An additional report by SRI was issued in November, 1999. Previously, VHS had focused on self-report data for its evaluations. For example, students and teachers were surveyed and reported on their levels of satisfaction. To supplement the ongoing evaluations, VHS contracted SRI to form an expert panel consisting of six subject area specialists. This expert panel would then establish standards for VHS NetCourses and review courses already in place. The panelists had to develop quality standards for VHS courses based on their expertise in their own subject areas as well as their experience with state and national standards. The panelists also worked in pairs to review NetCourses. The review process included individual assessments and partner discussions. The idea of collaborative partner discussion was considered an important part of the overall evaluation. The panel reviewed 12

NetCourses and concluded that out of 12, 11 courses were rated as satisfactory or better. Six courses were rated as "high quality."

Overall, the surveys of students, teachers, and administrators and case studies conducted by SRI found that participants in the VHS program have benefitted in many ways.

Research Question Analyses

In this section, the analyses regarding the research questions from Chapter I are reported.

Research Question One:

The Influence of Social, Economic, and Political Forces

1. What social, economic, and political forces influenced the Virtual High School model of e-learning?

Social, economic, and political factors have influenced the development of virtual schools, including VHS, from the beginning. The World Wide Web was established in 1992 as a component of the Internet, and a short time later, in the mid 1990s, plans for virtual schools began to take shape. New technology sparked interest in teachers who saw a way to address some of the increasingly diverse needs of students. Teachers and educators would now be able to communicate electronically and incorporate the use of the Internet into their courses with greater ease and flexibility (Wan, 2000).

As noted in Chapter II, the U.S. Secretary of Education released the country's first educational technology plan in 1996. The plan, Getting America's Students Ready for the 21st Century, hoped to prepare students for the demands created by the new global economy. In 1999, the plan was revised and new goals for technology in education were

released.

Accordingly, in 1996, former President Clinton created the CEO Forum on Education and Technology, whose members included Verizon, Hewlett-Packard, and Dell Computer Corporation. Clinton challenged business leaders to promote technology as an integral part of education. The Forum stressed the development of 21st century skills, a new set of skills necessary to prepare students for life and work in the digital age (CEO Forum Report, 2001). Recently, the National Association of State Boards of Education (2001) reported that "E-learning will improve American education in valuable ways and should be universally implemented as soon as possible" (p.6).

There is certainly a federal effort to support the use of educational technology in our schools. The government established the Technology Innovation Challenge Grant Program in 1995 to help fund new initiatives. According to the Technology Challenge Grant Proposal (as cited in Kozma et al., 1998), VHS was established to develop and offer a wide range of high-quality, innovative NetCourses that take full advantage of the Internet and support educational reform:

> By bringing the world into schools, Internet courses can tap knowledge and experience of corporations, universities, and individuals anywhere. Schools exploiting these resources can accelerate students' advanced study and integration into work and society while providing academic support as they make the transition to work. (p.1)

VHS was originally structured to fit the "mold"

described in Clinton's plan. Social and political factors certainly shaped the development of VHS because VHS was created as an answer to social changes and political requests. The U.S. Department of Education set goals that incorporated educational technology into every student's education plan.

What exactly motivates change in education? What is it that promotes reform within the system? Political policies, perhaps in the quest to satisfy some social demands, often dictate educational programming, delivery, and curriculum. An earlier example from Chapter II, the GI Bill of Rights, perfectly illustrates this point. The GI Bill of Rights of 1944 resulted in the growth of both traditional and distance education programs. It has been the single largest educational initiative in the United States (Davis & Botkin, 1994) and serves as a prime example of political force shaping education in America. Another example was the launching of Sputnik in 1957. This began the information era and the notion that we need to be competitive with the Soviets in regards to our teaching of math and science. All new educational initiatives in America seem to grow from seeds planted somewhere in political forums.

Likewise, VHS grew as the result of a request made by the U.S. Department of Education. The call was made for American educators to bring students into the 21st century with the communication and technological skills they'd need in the new knowledge/information society. The information society we now live in has drastically changed people's lives and demands are being placed on our educational system to improve the quality of education while adopting these rapidly

changing technologies.

Of course, boards of education, parents, and taxpayers all have influence upon what happens in the classroom. It appears as though political agendas for education either gain societal support and gather speed, or become unpopular and wane over time. Based on growth in numbers of both students and courses, VHS has increasingly gained support. Parents seem to appreciate the round-the-clock, flexible opportunities for learning that VHS offers to students.

Students themselves may also have input regarding educational delivery; their influence should not be overlooked. Students, especially at the high school level where they are on the verge of independence, play a part in the social forces governing educational programming. For example, a student attending a rural school who wishes to enroll in a Chinese language course, may unknowingly pressure his district to join an e-learning cooperative. The students' collective voices can impact instructional decisions. Again, VHS is the product of social and political forces; political leaders and societal changes together brought VHS into the world.

"Educational institutions are generally shaped by social and political forces rather than by economic concerns" (Davis & Botkin, 1994, p. 29). Economic forces have influenced VHS in as much as they impact any form of educational technology. As stated earlier, the CEO Forum created goals for America's students so that they may become successful businessmen and women in the future. As VHS works to meet these goals, the idea of globalization and future business success is part of their vision. If the global economy is already here, then a

global learning community must be put into place. As the number of technology options continues to rise, the competition within the market continues to intensify as more potential customers are considering distance-learning solutions (Shah, 1999).

Liegle and Meso (2000) present a similar perspective. They eloquently state:

> The socioeconomic changes currently taking place are changing the learning behaviors and expectations of learners. Globalization, a highly mobile society, the need for continuous learning and access to learning on demand require an entirely different educational paradigm. This has led to a growing demand of a flexible, adaptive, time and geographic independent learning environment. (p. 205)

In a more specific sense, economic forces influenced the development of VHS by determining which school districts across the country would be willing to join the cooperative and pay the fee. Budgetary issues play a part in determining which schools participate. School districts must be able to afford VHS and school administrators must be "sold" on the idea. Districts that join the VHS network make a financial commitment based on the idea that by paying the fee, their students will be able to take VHS NetCourses. By charging fees deemed appropriate by participating schools, VHS has been able to prosper.

Although federal agencies may promote distance education, the federal government does not control education policies at the state level. The state's control over distance education programming typically involves issues such

as accountability, certification, equity, funding, and quality (Clark, 2000). In VHS's case, funding was received through the Technology Innovation Challenge Grant, at the federal level.

To summarize, the rapid growth of information and communication technologies has led to an information era in which society, politics, and the economy have all been greatly impacted. These forces, in turn, have influenced the creation, development, and maintenance of the Virtual High School.

Research Question Two:
The Virtual High School's Effectiveness in Meeting the Needs of Participating Students

2. How effectively does the Virtual High School meet the needs of students from participating high schools?

Borje Holmberg (1977) asked: Why do students choose distance education? Are distance education programs implemented to relieve the burden of conventional schools and universities? To create cost-effective systems? To create alternative facilities for learning which encourage individualization and independence? Holmberg explains that although it is difficult to question whether students' or society's needs lead to the creation of distance education systems, it is possible to explore whether or not distance education is chosen as a means for students to acquire more autonomy. An autonomous student creates goals and objectives, acquires and collects information, practices skills while solving problems, and decides whether or not the subject matter is relevant (Holmberg, 1977). Students who

choose to participate in e-learning programs such as VHS may select the distance format because they are more likely to value control. Results from a study conducted by Roblyer (1998) found that students who chose distance courses, as opposed to traditional, face-to-face courses, were more likely to value control. Those who selected the traditional courses were more likely to value interaction with students and instructors. It is important to remember that as we look at whether or not VHS is meeting participants needs, those same participants likely have different needs than traditional students.

It is also important to consider the idea of student selection. VHS recommends that students who are selected to participate in VHS courses are those who demonstrate the ability to work independently and those who can handle responsibility. Sometimes, participating schools may require students to interview for the opportunity to enroll in a course. Other schools require that students present letters of recommendation (Espinoza et al., 1999). Though this policy may seem limiting, it does provide some insurance that NetCourses will be filled with students who are actually able to do the work. At any rate, VHS is doing its job of fulfilling the needs of these autonomous students as they learn at a distance.

According to SRI's first report, participation in the online courses resulted in several benefits to VHS students. The most obvious benefit is that students were able to take courses that they would otherwise not have been able to take. Sixty-two percent of the students agreed that this was their reason for participating in the project. Students also

confirmed that they liked the flexible scheduling and that the opportunity to take a course from home was an advantage. The idea that a VHS course could be taken at any time, and was self-paced, was also cited as an advantage.

Students gained new technological skills and were exposed to new technology through the VHS program. Many VHS students (over 81%) indicated that NetCourses are a different way to learn. These students acquired both new knowledge and skills as a result of participating in the program. Students also reported that they are working hard in their VHS courses, and their self-assessments agreed that they learned a "substantial amount" about the subject in their VHS NetCourse.

According to the SRI surveys for 1997-98, participating students were satisfied with the quality of the VHS courses. A large majority of students expressed overall satisfaction with the VHS project in general. However, site coordinators felt that VHS students did not interact with other students and teachers as much as they did in regular, face-to-face courses.

During the first year of evaluation, large majorities of students reported that they were satisfied with subject matter in their courses and students felt that they had learned new technological skills (Kozma et al., 2000). The second year, 1998-1999, resulted in similar findings.

In 1999, a paper was presented at the American Educational Research Association annual conference by Chen, Elbaum, and Walsh (1999). The researchers surveyed 373 VHS students in 1998 and asked, "While we realize your VHS experience is only a small part of your high school

experience, do you think it is one that will benefit you as you move on?" About 83% of the students responded that yes, their experience was satisfactory.

Liz Pape (personal communication, July 2002), CEO of VHS, explains that VHS does not just hand over a set of content to students to learn and then self-assess. The online learning experiences are designed so that students will be engaged and want to learn. Ms. Pape also explains that by taking an online course, students gain better global technology skills for a globally competitive world. Participants have the opportunity to collaborate with others outside their own socioeconomic background. Students actually learn online collaboration, which companies and corporations today expect their workers to be able to do.

Ruth Adams (personal communication, July 2002), Dean of Curriculum and Instruction at VHS, explains that students at VHS like the fact that they can manage their own time. Students like that they have some control and some say in their learning. Ms. Adams believes that e-learning empowers students and may help to give them confidence. As Liz Pape says, "No VHS student has acne." During the sensitive teenage years, the idea of being judged for one's abilities and insights, rather than one's appearance, is appealing to many students.

Another advantage is that in regards to a specialty course, students with a particular interest are able to find each other. Sometimes high school students can be very busy, but they can take a course of interest and be in class at midnight if they so choose. In *A Consumer's Guide to Online Courses* (Berman & Pape, 2001) the authors explain that

students are full participants in online courses. Students enrolled in an asynchronous course are able to collaborate with peers while they are learning the subject material.

In regards to student services, VHS has a partnership with the participating student's home district. The home district must provide a site coordinator as part of their affiliation with VHS. This is an essential part of the VHS model and differs from other types of online schooling in which less is asked of local districts. This may be part of the reason why participating students are satisfied with VHS; there is always someone in the home district who is trained and can provide assistance and/or support.

In conclusion, according to self-reports and observation, VHS has been effectively meeting the needs of participating students.

Research Question Three:
The Virtual High School's Effectiveness in Meeting the Needs of Participating Teachers

3. How effectively does the Virtual High School meet the needs of teachers from participating high schools?

Liz Pape (personal communication, July 2002), CEO of VHS explains that VHS does not give computers to teachers and say, "Here, go ahead and teach a class." VHS has strict standards and rigorous assessments in place. By using the Teachers Learning Conference (TLC), VHS teachers are given professional development materials, technical assistance, and any other tools they may need. TLC, a 125-contract-hour graduate-level course, is delivered online so that teachers are able to gain a VHS student's perspective first-hand. VHS

teachers must complete this comprehensive training course before they can begin teaching a course online.

Suzanne Harlow (personal communication, August 13, 2002), the Recruiting/Developmental Specialist at VHS believes that the big difference between VHS and other virtual school programs lies within the teachers and training. She explains that at VHS, real teachers do both face-to-face and online teaching. The intent is not to replace what is going on in schools, but to assist people, give them an option, and supplement education. Ms. Harlow explains that teachers on a whole are very satisfied and feel that their kids are learning more than in their face-to-face classes. The program provides teachers with a new way to teach and that is refreshing.

Beginning in 1997, 28 teachers prepared to teach online courses through VHS. Their assignment was to develop a course that would be taught to high school students in an asynchronous classroom community. Some of these teachers, still at VHS, have offered insights about their experiences. Adams (2002) explains that with the use of technology, these teachers have not only enjoyed their students' learning, but have developed their own teaching skills as well. Online teaching forces instructors to consistently improve their skills as they evolve and change with the times. Effective online teaching means constant evolution and keeping pace with today's "tech-savvy" students.

Zucker and Kozma (2003) explain that VHS teachers benefit because "they obtain access to new technologies, learn technology skills, and bring these skills to their other courses. Also, a large majority of the VHS teachers

are able to teach a course that they want to teach but probably could not teach in a face-to-face setting because the enrollments would be low" (p. 99). Zucker and Kozma (2003) have also noted that the VHS online experience is actually very similar to face-to-face courses in many ways. Teachers still prepare course material, interact with students, follow grading procedures, and use similar pedagogical techniques.

Another benefit for participating teachers is the interaction among teachers in VHS. VHS instructors have reported that it is helpful to collaborate with others while teaching an online course. During SRI's second year evaluation of VHS, most principals and superintendents stated that VHS teachers had the chance to collaborate and network with teachers from other schools. This is an exciting benefit for participating teachers. Two other benefits to teachers are the increased flexibility of asynchronous courses and increased knowledge of technology (Espinoza et al., 1999).

Teaching online is not without its share of challenges. While interaction with other teachers increased, VHS teachers may interact less with parents during an online teaching experience. SRI has also reported that teachers found it difficult to elicit a high degree of student participation. This did, however, vary from course to course. The whole notion of flexibility means that students may not spend time online each day. Zucker and Kozma (2003) explain that the structure of the software environment is asynchronous and that may be the reason for less interaction among students. Teachers would need to structure their classes to encourage

more student-to-student interaction when possible.

VHS teachers agree that teaching an online course is more time consuming than teaching a face-to-face course. There is more time needed to prepare and learn about the technology. Overall, however, teachers have expressed that they are very satisfied with the VHS experience. The challenge of learning to teach online is very appealing to VHS teachers.

Research Question Four:
Benefits for Educators and Education Leaders

4. How might educators and education leaders benefit from guiding the development of e-learning strategies in their own schools?

Change in the structural rigidity of education is long overdue. Computers have been around for many years, but the revolution that technology caused in the business world has yet to take place in our schools. Educators and education leaders are currently at the right place, at the right time, to drive the necessary organizational changes so that improvement can begin.

It is critically important for educators to design and maintain e-learning strategies in today's schools. There are technology standards in place, and K-12 teachers and administrators must be able to ensure that students are graduating with the skills they need. By applying an e-learning model such as VHS, educators can effectively integrate the newest technology into the curriculum. Not only will schools be meeting the standards for students, but teachers will also learn the technical skills they need.

As mentioned earlier, educational institutions have been encouraged to provide access to emerging technologies. In 1996, the CEO Forum on Education and Technology was created to promote technology as an integral part of education. The Forum's final report was issued in June 2001, proposing six key recommendations to ensure that the nation's investment in education technology improves student achievement and benefits education. The Forum stressed the development of 21st century skills, a new set of skills necessary to prepare students for life and work in the digital age (CEO Forum Report, 2001). Recently, the National Association of State Boards of Education reported that "E-learning will improve American education in valuable ways and should be universally implemented as soon as possible" (NASBE, 2001, p.6).

Educators and education leaders would benefit by guiding the development of e-learning strategies in their own schools because it is possible that by not doing so, standards would not be met and gains would not be made. Some schools that do not incorporate e-learning strategies may lose students to home schooling, private schools, or alternative schools that are better equipped to handle the new technology (Tinker, 2000). The online learning community is growing and it is important for education leaders to prepare both teachers and students for life in the information society. The effective utilization of information technology in education is a challenge that our education leaders must rise to meet.

E-learning initiatives offer students flexible scheduling, increased opportunities, and access to courses not otherwise available. For example, a recent press release announced that VHS would be offering summer school classes

online for the first time. Since some school districts have experienced budget cuts that prohibit running summer school classes, VHS has opted to register students for summer and to offer credit recovery in various subjects.

The benefits are numerous and may seem like a "slam dunk" to educators given the option to develop an e-learning program. However, some are still reluctant, believing that the value of taking courses online is unproven. Educators will need to look carefully at their own district's needs and chose a strategy that best matches their requirements. Educational leaders will need to choose a program that is most suitable to their specific learning environments. Knowledge of the various programs and services is a must for these educators.

There are several e-learning approaches available, but VHS remains the leading model. VHS's cooperative approach, along with its strong planning and evaluative structures, has resulted in a model that is, by design, outstanding in the field.

Research Question Five:

Online Distance Education: K-12 School Districts Look Ahead

5. What changes in the field of online distance education in the area of K-12 may be anticipated in the future?

John Chambers (as cited in Muoio, 2000), president and CEO of Cisco Systems, recently predicted that "education over the Internet is going to be so big it is going to make email usage look like a rounding error" (p. 286). Although distance learning is not a new phenomenon, the educational community has turned to the Web and e-learning as an

innovative vehicle for improving instruction. Though some may believe that on-line learning does little more than perpetuate what we do in traditional, face-to-face classes, it is apparent that on-line courses are indeed effective when there is an emphasis on advanced planning, pedagogy, and course design that ensures student-centered learning.

The implications for e-learning at the K-12 level are vast. Internet access is increasing and the costs of new technologies are dropping (Powers & Guan, 2000). High school students can now enroll in on-line college courses for credit. High schools are also increasingly offering effective secondary courses on-line. Though secondary schools have lagged behind higher education, there is increased access to technology in many K-12 districts. As noted in recent studies of virtual schools, the trend from virtual high schools to virtual K-12 schools continues (Clark, 2001).

Although the area of K-12 education has lagged behind, it is readily becoming the focus for improved methods of teaching with information technology. Around the world, educators are putting together initiatives that will effectively prepare young students for life in the 21st century. In Egypt, for example, one such initiative began with the goals of teaching kids about computers and exposing them to new technologies. The project, called The 21st Century Kids Clubs Project, was developed to help kids to think globally and to be able to collaborate and compete globally. The program targeted the "have-nots" in an effort to provide equity and narrow the gap between those who can and cannot communicate with the external world. By 1998,

there was at least one club in each of Egypt's 26 provinces (Kamel, 2000).

An award-winning Egyptian Web site for children, *Little Horus*, was also developed as part of Egypt's plan for students to be able to communicate in "tomorrow's language." "Little Horus" is an interactive site that is designed to teach students around the world about both ancient and modern civilization. Kamel (2000) states, "Little Horus represents a virtual knowledge valley in the cyber environment. It demonstrates a new venue to accelerate the learning process and to have a fair distribution of knowledge among young Internet users worldwide" (p. 180). These Egyptian initiatives are designed with goals that focus on improving the quality of education for kids through new and exciting information and communication technologies. It appears that projects aimed at the K-12 area are increasing, and not only in America. Around the world, educators have begun to realize that students, regardless of age, should have access to the opportunities provided by Internet resources.

The bottom line is, schools need to change both theoretically and structurally. We are in the midst of an information revolution, and reorganization in our schools is inevitable. One way to increase and improve the online courses available to secondary students is to form cooperatives, similar to the VHS program. In a cooperative, costs are lower because instead of paying tuition, per student, the number of course offerings is balanced with the number of students participating. Other than administrative and training costs, there are no new instructional costs each year (Tinker, 2000).

As noted in Chapter II, distance education has taken the form of correspondence study, university extension, radio programming, interactive television, and computer assisted instruction. Distance learning has been around for a long time and has yet to revolutionize education. What then, is different about e-learning and programs like VHS? For one thing, though written correspondence was used to conduct business throughout the years, people around the globe did not communicate through interactive TVs during the 20th century. Some forms of distance education did not pervade society. The business environment today, however, depends upon computing. The world is now connected electronically and we do indeed live within a global community supported by a global economy. Our future citizens have no choice but to adapt to this ever-changing technological environment.

Changes in online learning for the K-12 area include increased frequency of programming and increased number of participants. Online education for this age group is growing at a rapid rate. Pape (2002) states, "The opportunity to be part of a global community of learners is a precious gift right now, but we may find in the future that it is a necessity" (p. 12).

Telephonic Inquiry Procedure

In a continued attempt to gain an historical perspective, phone conversations with several VHS staff members were held during the summer of 2002. The VHS faculty provided valuable information and guidance and also served to validate information located in secondary sources of data. Selection of staff members was not random. This research

study attempted to analyze the development of one particular e-learning model, VHS, and so selection of individuals for the telephonic inquiry process were selected to serve that purpose.

Initial contact with each staff member was made through an e-mail that briefly described the purpose of the research. Once a response was received by the researcher, along with a scheduled date and time of the staff member's convenience, a telephonic inquiry was conducted. Notes were taken and immediately following the conversation, were transcribed into paragraph form. The format was semi-structured and the staff members were advised of the purpose of the research before answering any questions. The phone inquiries usually lasted about 30 minutes.

This format helped to focus direction to the evolution and sustenance of the VHS program. The questions were neutral in tone in an effort to allow verbalization of feelings and attitudes towards the topic. At times, the researcher posed questions other than the prearranged, structured questions in order to obtain clearer responses in greater depth. Further information offered by the VHS staff members was used as a guide to help focus on other areas deemed important in VHS development.

From Telephonic Inquiry with Liz Pape

Before becoming the CEO of VHS, Liz Pape served as the technology coordinator for public school districts. She describes her work as typical of a technology instructor, teaching Excel to students, training teachers, and holding a NetDay, similar to other schools around the country. One

defining moment for Ms. Pape involved the NetDay she coordinated. On a Saturday during the school year, parents, students, and community members were invited into the school building in an effort to wire the school for Internet services. The following Monday, Ms. Pape recalls walking into her computer class and wondering, "Now what?" She found herself saying, "No, don't do that!" too often. "No, don't download that music" and "No, don't visit that website." She left her position in the public school system to achieve her dream of actually doing something with this new technology.

Ms. Pape believes that it is a strong, clear vision of online pedagogy that distinguishes VHS from other virtual schools. VHS asks, "How can we engage kids? How can we design online learning experiences so that our students want to learn?" Ms. Pape explains that VHS is about curriculum. VHS does not hand over a set of content to students to learn and then self-assess. VHS does not give computers to teachers and say, "Here, go ahead and teach a class." There are strict standards and rigorous assessments in place.

It is understood that students from rural school districts and home schooled children would benefit from the diversity of courses offered through online educational programs. But what makes a VHS course in English literature different from a traditional course in English literature? How would a school district and, more importantly, their students, benefit from taking an online class if the district course selection is already rich and varied? Ms. Pape points to the CEO forum of twenty-first century skills we expect our students to attain. She says, "We need to expose them to these skills and give students the opportunity to use

technology as part of their learning. An online course forces the medium to do what it does best. They gain better global technology skills for a globally competitive world." Taking an online course also gets kids outside of their own socioeconomic background because they may participate in a class with 19 other students from 19 different states and, possibly, eight different countries. Students learn online collaboration. Companies and corporations today expect their workers to collaborate and cooperate online for various purposes. In an effort to make her point, Ms. Pape described her first year at VHS during which she only trained teachers before beginning student enrollment. All of the training and collaboration with teachers was online. She noted that she would not recognize most of these individuals, because though they worked closely, she never met them face to face. Ms. Pape models what she asks teachers to do with their students.

When asked about changes over the past few years at VHS, Ms. Pape agrees that the program is a work in progress. She describes the Model School Conference in Atlanta 5 years ago as an interesting comment on the situation. At that time, Ms. Pape addressed the gathered school administrators about VHS and professional development for e-learning. She says they looked at her as though she had two heads! Ms. Pape reflects, "What is most remarkable is that 5 years later, it's amazing to watch the change in people's reactions. We now have data, retention rates, etc. VHS has positioned itself uniquely by keeping the quality level up."

Interview with Ruth Adams

Ruth Adams is the Dean of Curriculum and Instruction at

VHS. She taught for 28 years and was one of the original VHS teachers. She finds being part of VHS to be personally rewarding because she is able to influence education on a national, and even international level. When teaching face-to-face, Ms. Adams touched 100 students per year. At VHS she reaches thousands of students per year.

As far as the grade levels at VHS, Ms. Adams explains that there are dot com companies that will sell to kindergarten age children. "They are really selling to the parents, not the kids." Online learning is text based and students need to be able to word process. Reading level is important. Fifth grade and above are appropriate grade levels for e-learning.

When asked why more school districts don't join on the e-learning band wagon, Ms. Adams believes that there are many factors involved, but perhaps the main reason is that "they just don't know about us." She doesn't think cost is the number one factor. "It's a factor, but not the main factor." Over 90% of the students in one participating district receive free or reduced lunch. Some of VHS's districts are very poor. Ms. Adams believes that in a parochial sense, districts ask, "Why don't we do it ourselves?" They do not know what they're in for.

So who are the students who choose to participate in VHS? Ms. Adams explains that the school offers a wide scope of classes, electives, and specialty courses. In regards to one NetCourse on folklore, she says that all of these kids with a particular interest found each other. Not just the best and the brightest. There is actually a parenting course offered to high school students who may find themselves

needing instruction on parenting skills.

VHS allows students to recreate themselves. Ms. Adams borrowed a quote from Liz Pape, "No VHS student has acne." She goes on to note that high school students can be very busy. By taking a VHS course, these students can be in class at midnight if they so choose. They can manage their own time. Students like the fact that they have some control and some say in their learning. E-learning empowers students and may help to give them confidence.

Ms. Adams says that she hopes we don't become a society of cyberschools. We can use the technology available to us to enhance our education programs, not replace them. Similar to the way we now allow students to use calculators on the math SAT, we can use online learning to improve education in our schools. We've become a global learning community and e-learning is part of the future. Older forms of distance education featured "talking heads" beamed in to classrooms. That was not as interactive or engaging as the e-learning system employed by VHS.

Interview with Suzanne Harlow

Suzanne Harlow is the Recruiting/Developmental Specialist at VHS. She worked as a teacher and in the business world before coming to VHS 7 months ago. She felt that working for a non-profit organization would be a good opportunity. She feels that bringing new schools into the consortium is very refreshing and rewarding.

Ms. Harlow explains that the big difference between VHS and other virtual school programs lies within the teachers and training. Here, real teachers do both face to face

teaching and online teaching. It's not just a posting on a website. Our intent is not to replace what's going on in schools, we just want to assist people, give them an option, supplement education. By joining VHS, a school can expand its offerings without expanding its staff. The community factor is another reason why we're successful.

A lot has changed over the past few years. If we look at displays we use for VHS exhibits, there are maps showing the number of states involved. There is an old map from 1997 that shows 10 participating states. Now there are 26 states and 8 countries on the map.

Teachers on a whole are very satisfied. They love it. On a whole, the teachers feel like their kids are learning more than in their face-to-face classes. Some have been teaching a long time and this gives them a new way to teach. It's refreshing.

Still, not every school joins on. Ms. Harlow believes that is due to several factors. One is that some schools are still not equipped technically. For other schools, it is a budget issue. Some schools consider VHS to be a frill. Ms. Harlow explained that it is certainly not a frill and that VHS is developing more AP courses to meet the needs of some students.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

The purpose of this chapter is threefold. The objectives are to summarize and interpret investigative data pertaining to the Virtual High School, explain the researcher's insights and conclusions, and finally, to provide a discussion of the implications for school administrators and recommendations for further research. As noted earlier, the study has implications for those involved in the decision making process regarding online education.

Summary

The purpose of this study was to identify and describe the influences that have affected the implementation of one particular e-learning program, the Virtual High School. In order to investigate the historical roots of this model, the researcher proposed to collect and analyze the literature on the Virtual High School in an effort to provide a resource for those seeking guidance in similar educational pursuits. The goal was to provide a description and interpretation of the VHS program in order to historically place the school among both past and present distance learning situations and trends. The approach was framed in the belief that distance education, particularly e-learning, can and will revolutionize America's system of education.

Chapter I of this study introduced the problem and purpose for the research. Five research questions were

generated. Chapter II, the literature review, included an exploration of distance education's roots, including early correspondence study and university extension. The review also included literature on other, more modern forms of distance learning, including the incorporation of instructional technology through electronic communications. Chapter III explained the methodology and purpose of historical research. The method of data collection was also explained. The findings for the five research questions were presented in Chapter IV. Chapter IV included an analysis of the VHS program and a summary of the SRI evaluations. This chapter, Chapter V, includes the study's summary, conclusions and recommendations for further research.

After review and analysis of the data, it appears that distance education is a concept that originated in Europe centuries ago. Perhaps distance education came about when students' desire to learn from teachers first emerged. The desire to learn, and the inability to come by that learning is nothing new. The rise of university extension began about the middle of the nineteenth century and the intent was to reach the needs of the working class, those who could not attend traditional university classes. After the establishment of university extension, correspondence teaching began in England when educators such as Sir Isaac Pittman began instruction in shorthand by sending lessons through the mail to students at home (Tuman, 1993). In the United States, Anna Eliot Ticknor founded the Society to Encourage Studies at Home in 1873. A short time later, higher learning institutions, such as Illinois Wesleyan University, began to offer courses through correspondence

study.

The advent of instructional technology brought promise to those in the field of distance education. For example, there were great hopes that instructional radio would result in educational growth. However, media hype along with the lack of two-way communications is blamed for the failure of radio education. In the 1950s, educational television emerged, soon followed by satellite technology and interactive television. Though to some extent successful, interactive television, along with computer-assisted instruction brought to mind the question of *what*, in regards to the learning, had actually changed?

There were huge leaps in technological innovations during the early and mid-1990s and the country's first educational technology plan was set forth in 1996. We are now in the Knowledge-Value era, where everything is contextual (Thornburg, 2002). Today's distance education programs can provide rich, interactive opportunities for instructional delivery. The World Wide Web has become a convenient vehicle for those wishing to transport curriculum and material. E-learning, as part of the field of distance education, is experiencing a period of rapid growth. Though the concept of distance learning emerged many years ago, early methods were not as interactive as e-learning and some merely featured, according to Ruth Adams (personal communication, July, 2002), "talking heads beamed into classrooms." As an e-learning initiative, the Virtual High School offers the promise of reaching and educating students regardless of where they live and which schools they attend.

Conclusions

Although there have been several trends in distance learning, including university extension, interactive television, and e-learning, all have focused primarily on one goal: to provide education to those who are unable (or have chosen not) to attend traditional face-to-face classes for one or more reasons. In all of the various forms of distance education, the one common component was that students and their instructors are separated by geographic distance, but "benefit from the planning, guidance, and tuition of a tutorial organization" (Holmberg, 1977, p. 6).

E-learning, administered through VHS, was the distance education initiative chosen as the focus for this particular research. As indicated in Chapter IV, it was the motivation by social and political forces that led to the federal government's issue of the Technology Innovation Challenge Grant in 1995. This, in turn, spurred the development of VHS. The United States government, calling for educators to teach skills necessary for life in the 21st century, provided funding and was behind the development of VHS from its inception. The rapid growth of information and communication technologies has led to an information era in which society, politics, and the economy have all been greatly impacted. These forces have influenced the creation, development, and maintenance of the Virtual High School.

As discussed in the findings regarding the second and third research questions, both students' and teachers' needs are effectively met through participation in the VHS program. The SRI research, internal VHS evaluation, related literature, and telephonic inquiry all supported this

conclusion. VHS offers students flexible scheduling, increased opportunities, and access to courses not otherwise available. Benefits to teachers include increased flexibility of asynchronous courses and increased knowledge of technology (Espinoza et al., 1999). It is interesting to note that the present study was done in parallel to a book written about VHS, titled *The Virtual High School: Teaching Generation V* (Zucker & Kozma, 2003). The authors, members of the SRI research team, also concluded that those involved with VHS have reported many benefits and are satisfied with the program overall.

As the findings for research question four indicate, educators and education leaders would certainly benefit from guiding the development of e-learning strategies in their own schools. VHS is an effective model for anyone wishing to implement a cooperative e-learning program. Administrators and curriculum designers would profit from exploring the VHS model. Although distance learning is not a new phenomenon, the educational community has turned to the Web and e-learning as an innovative vehicle for improving instruction.

As indicated in Chapter IV, analysis of research question five led to the conclusion that the implications for e-learning at the K-12 level are numerous. Online courses are indeed effective at this level when there is an emphasis on advanced planning, pedagogy, and course design that ensures student-centered learning. As noted in recent studies, the trend from virtual high schools to virtual K-12 schools continues (Clark, 2001). Although the area of K-12 education has lagged behind, it is readily becoming the focus for improved methods of teaching with information technology.

The research presented in this dissertation supports the belief that by using a successful e-learning model, such as VHS, the existing educational paradigm can begin to undergo some much needed, long overdue change. The CEO Forum Report (2001) suggests that the workforce will be part of an evolving digital economy and today's students will be lifelong learners. The report stresses that the development of 21st century skills is necessary to prepare students for life and work in the digital age. Theorists such as Thornburg (2002) and November (1999) explain that educational reform is essential and systemic changes are necessary. Around the world, educators have begun to realize that students, regardless of age, should have access to the opportunities provided by Internet resources. This research corroborates the theory that envelops VHS: within a learning environment that is interactive, technologically advanced, and exciting, students can finally push beyond the confines of traditional classrooms.

So, where does VHS fit in along the timeline of distance learning trends? What is its place in history? VHS's mark on the timeline falls under the label *e-learning*, which is covered by the broader topic of *web-based education*. It is the here and now of distance education, the present day trend. There is little argument that the trend will continue.

As far as VHS's place in time, we know that the school began in 1996 and is still going strong today. It comes at the forefront of a revolution in education, one spurred by the advances in information technology and communications. Interestingly, events in history not only have a time

phenomenon, the *when*; they also have a space dimension, the *where* (Leedy, 1997). VHS has made its mark on history by becoming the first successful virtual high school in America that brings instruction to students anywhere and at any time.

VHS has been a pioneer in the field. McLester (2002) states: "Since the 1996 pioneering efforts of The Concord Consortium's Virtual High School..... state-, district- and site-level initiatives have been forging the way for national and even global efforts" (p. 1).

By utilizing a system that continually plans and evaluates, VHS has attempted to improve the quality of its courses, refine the technology it uses, expand student enrollment and participation, and contribute to the professional development of all instructors and administrators. Finally, an important trend in the findings is that VHS supports educational reform. "The Virtual High School's online courses are a proven, flexible solution for schools needing an expanded curriculum, teachers seeking new horizons, parents wanting more involvement with their children's education, and a society grappling with ways to offer opportunity to all its citizens" (Pape, 2003, p. 1). The choice of the word *solution* is significant here. VHS provides a possible solution or answer to the questions regarding issues of quality and equity in today's schools. VHS may be incorporated into a school district as an integral part of the reorganization, the restructuring, and the improvement of the system.

Though educators talk about e-learning and virtual schools as being innovative and progressive, the reality is that schools like VHS may be mainstream in the near future.

E-learning programs may be commonplace as, say, biology textbooks. Just as the information technology has had a great effect on business, a likely transformation will also occur in the education sector. Our students will require different kinds of educational opportunities that offer skills they need for a successful future.

Recommendations

Further Study

The findings of this research present several opportunities for further exploration in the field. For the purpose of this study, VHS has been given the principal role. But since the stage has been set with other virtual schools and e-learning programs, it may be useful to examine these schools as well. The idea behind this study was to explore a successful e-learning program in order to determine what makes it successful. Another approach for future research might include a look at e-learning initiatives that have failed in order to determine why they did not succeed. Are failing virtual schools simply an unfortunate result of recent dot com disasters? Was the need for careful planning pushed aside during the excitement of building course Web pages for the first time? What were some of the common pitfalls and how can they be avoided?

Or perhaps the skepticism regarding e-learning is based on models that were poorly designed and inadequately managed. Haavind, et al. (2002) explain that when an online course is designed as a self-paced series of activities, it does not take full advantage of the available technology. Basically, if a course is not interactive, with collaboration being a

key component, it is more likely to fail. The research in this area, however, is new, and continued investigation might provide policy rather than speculation.

Further studies might also look at long term effects of the e-learning approach on students' level and degree of education. Longitudinal studies might shed light on whether students participating in VHS's online courses were more successful in their educational endeavors than those choosing to follow a more traditional route. Of course, the longitudinal data must first become available before such research is possible. Although VHS is the oldest virtual high school, it is still considered a new instructional approach. Once available, longitudinal data might help determine which e-learning strategies lead to significant student achievement.

Anyone wishing to do research in the field of educational technology must keep in mind that the technology itself is ever-changing. By the time this very study is completed, and as the research is being recorded, a new delivery system might emerge. The researcher in the field of educational technology must be comfortable with ambiguity and constant change. That is the nature of the field.

Blomeyer (2002) writes that:

> existing educational research and program evaluations that examine and analyze the outcomes and impact of online learning in K-12 environments presently are very limited....existing research summaries and meta-analyses concerned with e-learning policy and practice should be expanded to include newly published findings on recent state and regional virtual high school projects. (pp. 9-

10)

E-learning practice in K-12 schools is only emerging as a discussion topic among leaders in education. Continued research in the field is imperative so that consideration, participation, and effective implementation of e-learning and virtual schools can become a reality for K-12 students.

Implications and Suggestions for Educational Leaders

The newest technologies can offer a framework for an enhanced learning environment that is interactive and engaging. However, as noted earlier, the latest technologies through the years have yet to significantly change our schools or improve the quality of education for our students. Leaders today have the opportunity to make a real impact in improving the quality and equity of education, but important considerations must be made. Educational leaders must take a hard look at instructional design, distance format, funding, and research before implementing any program.

Powers and Guan (2000) state that "It is important to remember that one of the purposes and benefits of Web-based instruction is to make education accessible to a greater variety of students and populations" (p. 213). Therefore, when designing a course that will be delivered over the Internet, administrators should be aware of the significance of planning and designing in advance, and the consideration of all the students. The successful incorporation of an e-learning program will depend upon this initial implementation.

Further implications include the idea of principals and other administrators educating the community about e-

learning. School administrators are responsible for disseminating information to the public so that parents are aware of the importance of technology in education. Parents deserve to know that the potential for use of online learning is great, and that it can be both cost-effective and significant in terms of positive educational outcomes. Looking at community interest is an important consideration; the students and parents in the community must be informed about issues and policies regarding online learning. It is imperative that dialogue take place between those guiding e-learning strategies and their respective communities.

Though it began with federal funding, VHS now charges an annual fee to participating schools in an effort to sustain its quality programming. Virtual schools that receive governmental backing eventually need to find some form of sustainability. Administrators need to know that grants may provide important start up costs, but strategies are needed to provide sustainability over the years. Planning of these sustainability strategies is essential.

E-learning is a powerful idea. It allows learning to be asynchronous, provides access to courses that might be otherwise unavailable, and promotes collaboration and interaction among participants- all while it supports the United States government's vision of improving the quality of education through the use of technology-based delivery systems. Education leaders must understand the promise of e-learning and virtual schools so that sound decision making and effective implementation is possible. Obviously, students' access to programs like VHS will depend upon the knowledge, consideration, and approval of local school

leaders.

The implications for school administrators are countless. E-learning and virtual schooling together may constitute a shift in educational paradigm. These technological approaches may be used to improve the quality and equity among our students. In conclusion, consider the following *very real* scenarios:

It is the year 2003 and a history teacher at a suburban public school is in high demand. He is an history buff, a teacher who has created courses for gifted students on The Civil War and The Twentieth Century, among others. Nervous parents begin writing letters to request this teacher months before their children will actually enter 5th grade, but there are only 25 available seats and many children (and parents) will be disappointed. It is unfortunate that these students won't have the opportunity to learn from such an enthusiastic, creative history teacher. One such child, labeled "gifted" after completing a rigorous screening process, is bored in his new class and often complains to his parents, who are considering home instruction.

At the same school, a child engages in a physical altercation with another student. It is not his first offense and so, according to the district's Code of Conduct, he receives a two-day out-of-school suspension. He brings his text books home but can not fully participate in the lessons and so misses out on several hours of educational opportunity. He has the ability to log on to the Internet at home, but the school's website is promotional and does not assist him in this regard.

Spring has arrived and the school's principal has been

sent to a nearby city college to recruit new teachers. There is a teacher shortage in the area and since several of the district's teachers will be retiring in June, administrators are scurrying to entice the best and the brightest education majors. The principal returns from his trip discouraged. He has met a few promising candidates, but there are not enough applicants to fill the vacant positions in his school. He worries that he might need to hire teachers from a less qualified pool of prospects.

The creation and implementation of an e-learning operation in this K-12 public school system would profoundly change the above-mentioned scenarios. E-learning strategies have emerged into an idea that promises to restructure education by providing teachers and students with the ability to interact with each other regardless of time and distance. The Virtual High School has successfully entered the distance education arena by providing online education to students all over the country who are now able to log on and enroll in courses that their own districts have been unable to provide. That is, in itself, invaluable.

References

Adams, R. (2002, Spring) VHS and f2f teaching: A 5-year perspective on the evolution of teaching in the technology age. *VHS Inc. Network*. Retrieved June 8, 2002, from http://www.goVHS.org

Amiri, S. (2000). Distance education: augmentation to traditional classroom. In L. Lloyd (Ed.) *Teaching with technology: Rethinking tradition*. Medford, NJ: Information Today, Inc.

Barker, B. O., & Dickson, M. W. (1996). Distance learning technologies in k-12 schools. *Techtrends, 41(6)*, 19-22.

Berman, S. (2000, Spring). What's next for VHS? *VHSpecial Issue*. Retrieved June 1, 2000, from http://www.goVHS.org

Berman, S. H., & Pape, E. (2001, October). A consumer's guide to online courses. *The School Administrator*. Retrieved December 8, 2001, from http://www.aasa.org/publications/sa/2001

Best, J. W., & Kahn, J. V. (1998). *Research in education*. Boston: Allyn and Bacon.

Bittner, W. S., & Mallory, H. F. (1933). *University Teaching by Mail: A survey of correspondence instruction conducted by American universities*. New York: The Macmillan Company.

Blomeyer, R. (2002). Virtual Schools and e-learning in k-12 environments: Emerging policy and practice. *NCREL Policy Issues, 11*, 1-10.

Bunker, E. (1998). An historical analysis of a distance education forum: The international council for distance education world conference proceedings, 1938 to 1995. *Dissertation Abstracts International*, A59/06, p. 1864, Dec 1998. (UMI No. 9836630)

Case, V., & Case, R. O. (1948). *We called it culture: The story of chautauqua*. Garden City, New York: Doubleday and Company, Inc.

CEO Forum Report (2001). *Key building blocks for student achievement in the 21st century*. Retrieved June 3, 2002 from http://www.ceoforum.org/reports.cfm

Chadwick, C. B. (1979). Why educational technology is failing (and what should be done to create success). In H. F. Clarizio, R. C. Craig, & W. A. Mehrens (Eds.), *Contemporary issues in educational psychology* (pp. 235-247). Boston: Allyn and Bacon, Inc.

Chaika, G. (1999). Virtual high schools: The high schools of the future? *Education World*. Retrieved June 3, 2002 from http://www.education-world.com/a curr/curr119.shtml

Charles, C. M. (1998). *Introduction to educational research*. New York: Addison Wesley Longman.

Chen, F., Elbaum, B., & Walsh, S. (1999, April). *Students speak: An analysis of student feedback on the virtual high school experience*. Paper presented at the 1999 American Educational Research Association annual conference, Montreal, Canada.

Clark, R. (1983). Reconsidering research on learning from media. *Review of Educational Research, 53*(4), 445-459.

Clark, T. (2000). *Virtual high schools: State of the states.* Macomb, IL: Center for Application of Information Technologies, Western Illinois University.

Clark, T. C. (2001). *Virtual schools: Trends and issues. A study of virtual schools in the United States.* Retrieved June 28, 2002 from http://www.wested.org/online_pubs/virtualschools.pdf

Comeaux, P. (2002). Collaboration, communication, teaching, and learning: A theoretical foundation and frame. *Communication and collaboration in the online classroom: examples and applications.* Bolton, MA: Anker Publishing Company.

Creese, J. (1941). *The extension of university teaching.* New York: American Association for Adult Education.

Cyrs, T. E. (1997). Competence in teaching at a distance. *New Directions for Teaching and Learning, 71,* 15-18.

Davis, S. & Botkin, J. (1994). *The monster under the bed.* New York, New York: Touchstone.

Education week technology counts. (May, 2002). *E-defining education.* Vol. 21(35), pp. 8-10.

Espinoza, C., Dove, T., Zucker, A. A., & Kozma, R. B. (1999). *An evaluation of the virtual high school after two years of operation.* Menlo Park, CA: SRI International.

Fowler, L. S., & Wheeler, D. D. (1995) Online from the k-12 classroom. In Z. Berge & M. Collins (Eds.), *Computer mediated communication and the online classroom.* Cresskill, NJ: Hampton Press, Inc.

Haavind, S., Rose, R., Galvis, A., & Tinker, R. (2002). *Online courses that work and some that don't*. Retrieved July 7, 2003 from http://www.Concord.org

Hadingham, J. (2001). *The concord consortium spins off Virtual High School, Inc. as an independent nonprofit service organization*. Retrieved July 9, 2002 from http://www.govhs.org/vhsweb/press.nsf

Hanson, D., Maushak, N. J., Schlosser, C. A., Anderson, M. L., Sorensen, C., & Simonson, M. (1997). *Distance Education: Review of the Literature, 2nd Edition*. Washington, D.C.: The Association for Educational Communications and Technology.

Hollenbeck, J. (1998). Democracy and computer conferencing. *Theory into Practice, 37*(1), 38-45.

Holmberg, B. (1977). *Distance education: A survey and a bibliography*. London: Kogan Page.

Kamel, S. (2000). The web as a learning environment for kids: Case study: "Little Horus." In Lau (Ed.), *Distance learning technologies: Issues, trends and opportunities* (pp. 166-183). Hershey, PA: Idea Group Publishing.

Kaplan-Leiserson, E. (2000). *E-learning glossary*. Retrieved July 6, 2002 from http://www.learningcircuits.org/oct2000/oct2000_elearn.html

Kerka, S. (1996). *Distance learning, the internet, and the world wide web*. (ERIC Document Reproduction Service No. ED395214 96)

Kozma, R., Zucker, A., & Espinoza, R. (1998). *An evaluation of the Virtual High School after one year of operation*. Menlo Park, CA: SRI International.

Kozma, R., Zucker, A., Espinoza, C., McGhee, R., Yarnall, L., Zalles, D., & Lewis, A. (2000). *The online course experience: Evaluation of the Virtual High School's third year of implementation, 1999-2000.* Menlo Park, CA: SRI International.

Krathwohl, D. R. (1997). *Methods of educational and social science research: An integrated approach.* New York: Longman.

Lane, C., & Cassidy, S. (1996). *Star school projects: Distance learning model practices.* (Report No. IR017-807). San Francisco, CA: WestEd (ERIC Document Reproduction Service No. ED394506)

Leedy, P. D. (1997). *Practical research: Planning and design.* Upper Saddle River, NJ: Merrill.

Leftwich, G. (2001). Virtual High School: Online program expands list of classes available to students. *Chalktalk: A newsletter for educators.* Retrieved January 3, 2002, from http://vhs.concord.org/vhsweb/press.nsf

Liegle, J. O., & Meso, P. N. (2000). Web-based instruction systems. In L. Lau (Ed.) , *Distance learning technologies: issues, trends, and opportunities* (pp. 186-207). Hershey, PA: Idea Group Publishing.

The many faces of vhs: who is helping vhs...and how? (2000, Spring) *VHSpecial Issue.* Retrieved October 31, 2003, from http://www.goVHS.org/Pages/WhyVHS-Press

McLester, S. (2002) Virtual learning takes a front row seat. *TechLearning.* Retrieved June 21, 2003, from http://www.techlearning.com/db area/archives/TL/2002/03/virtual.com

Muoio, A. (2000). Cisco's quick study. *Fast Company Magazine, 39*, 286.

Musial, G. G. & Kampmueller, W. (1996) Two-way video distance education: Ten misconceptions about teaching and learning via interactive television. *Action in Teacher Education, 17(4)*, 28-36.

NASBE Study Group on e-Learning (2001). *Any time, any place, any path, any pace: Taking the lead on e-learning policy*. Alexandria, VA: National Association of State Boards of Education. Retrieved June 3, 2002 from http://nasbe.org/Organization_Information/e_learning.pdf

Noffsinger, J. S. (1926). *Correspondence schools, lyceums, chautauquas*. New York: Macmillan.

November, A. (1998) Creating a new culture of teaching and learning. Presented at *Asilomar Symposium on Standards, Students, and Success*, CA. Retrieved June 3, 2002: http://www.anovember.com/articles/asilomar.html

Office of Educational Technology (2000). *E-learning: Putting a world-class education at the fingertips of all children (The National Technology Plan)*. Washington, DC: U.S. Department of Education. Retrieved July 23, 2002, from http://www.ed.gov/technology/elearning/e-learning.pdf

Opitz, M. (1996). Interactive distance learning: implications for the classroom teacher. *The Clearing House*, 69(6), 325-327.

Oppenheimer, T. (1997). *The computer delusion*. Retrieved January 16, 2001, from http://www.theatlantic.com/issues/97jul/computer.htm

Owston, R. (1997). The World Wide Web: A technology to enhance teaching and learning? *Educational Researcher, 26(2)*, 27-33.

Pape, L. (2003, Spring) Schools calculate vhs value: Making the decision to join in challenging times. *VHS Inc. Network.* Retrieved July 6, 2003, from http://www.goVHS.org

Pape, L. (2002) *VHS, Inc. Annual Report*. Retrieved July 6, 2003, from http://www.goVHS.org

Pape, L. (2000). Online education: The internet's killer App. *Concord.org Newsletter*. Retrieved January 3, 2002, from http://www.concord.org/newsletter/2000spring/killerapp.html

Powers, S. M. & Guan, S. (2000) Examining the range of student needs in the design and development of a web-based course. In Abbey (Ed.), *Instructional and cognitive impacts of web-based education* (pp. 200-216). Hershey, PA: Idea Group Pub.

Rivais, L. (2001). Virtual high school does distance learning right. *Union News: masslive.com*. Retrieved August 1, 2002, from http://www.masslive.com/newsindex/rivais/index.ssf?/news/pcolumns/lrcol012.html

Roblyer, M. D. (1998). Is distance ever really dead? Comparing the effects of distance-learning and face-to-face courses. *Learning and Leading with Technology, 25*, 32-34.

Roblyer, M. D., & Elbaum, D. (1999). Virtual learning? Research on virtual high schools. *Learning and Leading with Technology, 27* (4), 58-61.

Rose, S. N. (1991). Collegiate-based noncredit courses. In B. B. Watkins & S. J. Wright (Eds.), *The foundations of American distance education* (pp. 67-92). Dubuque, Iowa: Kendall/Hunt.

Rumble, G. (1989). On defining distance education. *The American Journal of Distance Education, 3(2),* 8-21.

Russo, A. (2001, Oct.). E-learning everywhere. *The School Administrator Web Edition.* American Association of School Administrators. Retrieved July 6, 2002, from http://www.aasa.org/publications/sa/2001_10/russo.htm

Schlosser, C., & Anderson, M. (1994). *Distance education: Review of the literature.* Washington, DC: Association for Educational Communications and Technology.

Schmidt, S. W. (2000). Distance education 2010: a virtual space odyssey. In L. Lloyd (Ed.), *Teaching with technology: Rethinking tradition* (pp. 75-90). Medford, NJ: Information Today, Inc.

Shah, A. (1999). *Introduction to the distance learning market* http://www.usdla.org/ED_magazine/illuminactive/DEC_1999/intro.htm

Shannon, T. J., & Schoenfeld, C. A. (1965). *University extension.* New York: The Center for Applied Research in Education, Inc.

Sherry, L. (1996). Issues in distance learning. *International Journal of Educational Telecommunications,1* (4), 337-365.

Simonson, M. (1997). Distance education: Does anyone really want to learn at a distance? *Contemporary Education, 68,* 104-107.

Thompson, A., Simonson, M. R., & Hargrave, C. P. (1996). *Educational technology: A review of the research.* Bloomington, IN: The Association for Educational Communications and Technology.

Thornburg, D. (2002). *The new basics: Education and the future of work in the telematic age.* Alexandria, VA: Association for Supervision and Curriculum Development.

Tiene, D. (1997). Student perspective on distance learning with interactive television. *TechTrends, 42*(1), 41-47.

Tinker, R. (2000). *Ice machines, steamboats, and education: Structural change and educational technologies.* Retrieved January 3, 2002, from http://www.concord.org/newsletter/2000fall/perspective.html

Tuman, R. J. (1993). The external studies program at the University of Pittsburgh: An historical analysis, 1972-1992. Dissertation, University of Pittsburgh. *Dissertation Abstracts International,* A55/03, p. 487, Sep 1994. (UMI No. 9421512)

United States Department of Education (1995) *The star schools program.* (Available from Star Schools, U. S. Department of Education, 555 New Jersey Avenue NW, Washington, DC 20208-5644)

United States Distance Learning Association/USDLA.(2000) *Distance learning fact sheet.* Retrieved March 20, 2000, from http://www.usdla.org/03_fact_sheet.htm

Verduin, J. R., & Clark, T. A. (1991). *Distance education: The foundations of effective practice.* San Francisco, CA: Jossey-Bass Publishers.

Wan, S. P. (2000). Asking the right questions: a five step procedure for incorporating internet technology into a course. In L. Lloyd (Ed.), *Teaching with technology: Rethinking tradition* (pp. 91-108). Medford, NJ: Information Today, Inc.

Watkins, B. L. (1991). A quite radical idea: The invention and elaboration of collegiate correspondence study. In B. L. Watkins & S. J. Wright (Eds.) *The foundations of American distance education* (pp. 1-35). Dubuque, Iowa: Kendall Hunt Publishing Company.

Watkins, B. L., & Wright, S. J., Eds. (1991). *The foundations of american distance education: A century of collegiate correspondence study.* Dubuque, IA: Kendall Hunt Publishing Company.

Yamashiro, K., & Zucker, A. (1999). *An expert panel review of the quality of Virtual High School courses: Final report.* Menlo Park, CA: SRI International.

Zucker, A. & Kozma, R. (2003). *The virtual high school.* New York: Teachers College Press.

Appendix A

Listing of Courses Available in the VHS Course Catalog, 2003-2004

VHS Catalog 2003-2004
List of Courses by Discipline

Arts

American Popular Music
Art and the Internet: Creating a Virtual Museum Exhibit
Art History: Renaissance to Present
Caribbean Art History
Creating Art History
History and Pop Music: 20th Century History and American Pop Music
History of Photography
Music Composition and Arranging
Music Listening and Critique

Business

Business and Personal Law
Entrepreneurs: Business Owners of the 3rd Millennium
Entrepreneurship: Starting Your Own Business
Investing in the Stock Market
Learning to Invest in the Stock Market
Marketing and the Internet
Personal Finance
Statistics and Business Quality Management

Foreign Language

AP French Language
AP Spanish Language/Spanish V
Writing in Spanish

Language Arts

101 Ways to Write a Short Story\A Shakespeare Who-Dun-It: Introduction to Shakespeare
Around the World in 80 Days
Contemporary American Poetry
Contemporary Irish Literature
Creative Writing for People Who Mean It: Advanced Imaginative Writing
English Literary Foundations
Folklore and Literature of Myth, Magic, and Ritual
Ghoulies, Ghosties, and Long-Legged Beasties: Why We Like to be Scared
Hearts of Darkness: Meeting Ourselves in Literature
Heroes
Horror, Mystery and Science Fiction Literature: Edgar Allen Poe to the Present
Is Romance Dead?: Love in Literature
Literature of Charles Dickens: Three Tales of Expectation
Mythology: Stories from Around the World, from the Beginning of time, to the End of the Earth

Poetry Writing
Reading and Writing the Science FIction Short Story
Satire Through the Ages
Screenwriting Fundamentals
Shakespeare in Films
Survey of African American Literature/History
To Kill a Mockingbird: Maycomb- Microcosm to the World
Twentieth Century Women Authors: A Reflection of a Changing America
Unconventional Authors: A Study of Literary Outsiders
Western Cultural Humanities: A Tour of Arts and Ideas
Writing and Telecommunications: Write On For Real
Young Adult Literature: Issues in Tolerance and Diversity

Life Skills/Health

Career Awareness for the New Millennium
Employability Skills
Parenting in the Twenty-First Century
Perspectives in Health
Project Sail

Math

AP Statistics
Calculus for Business
Math in the Real World: Measuring the Earth: Applied Mathematics
Math You Can Use in College
Number Theory: Patterns, Puzzles and Cryptography
Statistics and Business Quality Management

Science

Anatomy & Physiology: A Study in Stability
AP Biology
AP Environmental Science: A Passage to Know, to Love, and Then to Keep the Earth
AP Physics
Astronomy: Stars and the Cosmos
Basic Chemistry: Chemistry Applications
Bioethics Symposium
DNA Technology
Environmental Chemistry
Environmental Science: The World Around Us
Epidemics: Ecology or Evolution
Evolution and the Nature of Science
Genes and Disease: The Inheritance of Human Genetic Disorders
Geology: The Natural History of Your State
Integrated Mechanical Physics with Logical Reasoning: Mechanics in Physics
Meteorology: A Study of Atmospheric Interactions
Nuclear Physics: Science, Technology & Society
Preveterinary Medicine

Social Studies

American Foreign Policy
American History: All History is Local History
AP Economics: Micro and Macro
Constitutional Law
Cultural Anthropology: Studies in Diversity
Democracy in America?
Eastern and Western Thought
Film and Literature: The European Experience
Gods of CNN: The Power of Modern Media
History: Same as it Never Was
Introduction to Sociology
Lewis and Clark's Expedition: An Interactive Journey
Maritime History: Riders on the Storm, The Story of the United States Life-Saving Service 1870-1920
Pearl Harbor to the Atomic Bomb: The Pacific War, 1941-1945
Practical Law: What You Need to Know About the Law
Psychology- An Introduction
Service-Learning
The Holocaust
The Vietnam War
World Area Studies: Current Issues and Events
World Conflict, a United Nations Introduction

Technology/ Tech. Ed

Access: Database Structure and Application
Computational Science and Engineering Using Java
IB Information Technology for a Global Society
Introduction to Programming in Visual Basic
Visual Basic: A Visual Introduction
Visual Basic 6.0
Web Design and Internet Research
Web Design: Artistry and Functionality
Web Design: Web Paging the Great Scientists

Appendix B

VHS Telephonic Inquiry Questions

VHS Questions for Telephonic Inquiries:

1. What is your title? Job description?

2. When did you join the VHS team? Why?

3. How would you describe the effectiveness of the program?

4. What did you do before coming to VHS?

5. What were the factors that influenced you to change from ___to VHS?

6. Do you think you'd go back to traditional teaching methods?

7. Why do you think VHS is still around and other online programs have gone by the wayside?

8. What is different about VHS than other distance ed programs?

9. Do students report satisfaction? Parents?

10. What has changed within the VHS program over the years? Has the curriculum changed?

11. Who else do you suggest I speak to? Was there anyone in particular that influenced your decision to join VHS? Are there any books/theorists that you suggest I read?