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Distance learning in the Pitman school district: a window on the world

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DISTANCE LEARNING IN THE PITMAN SCHOOL DISTRICT:

A WINDOW ON THE WORLD

By
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A Thesis

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Master of Arts Degree
of
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Approved by
Professor

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Abstract

Marsha K. Hahn   Distance Learning in the
                                                  Pitman School District:
                                                  A Window on the World
                                                  2003
                                                  Dr. Robert Kern
                                                  School Administration

The purpose of this study was to understand how a well-developed procedure to facilitate the use of distance learning technology would impact teaching practice and student achievement at Pitman High School. As part of the action research, the intern conducted a survey using a questionnaire that employed a Likert-type format. The population for the study consisted of a sample of the teaching staff from Pitman Schools representing an elementary school, middle and high school. Each of these schools had distance learning technology available. The intern analyzed the results of the survey, and computed the mean response to each question for each school.

In spite of extensive planning and groundwork, the level of utilization of this technology did not meet the intern's expectations. The intern's observations and research revealed causes for the limited use.

The survey results indicated that the teachers, while exhibiting limited use, held this technology in high regard and desired support and training to enhance their infusion of the technology into their educational practice. The intern concluded that positive change occurred, and she will continue to develop effective methods to infuse this technology into the curriculum at Pitman High School.

Mini - Abstract

Marsha K. Hahn

Distance Learning in the
Pitman School District:
A Window on the World
2003
Dr. Robert Kern
School Administration

This study examined the impact of distance learning on teaching practice and student achievement at Pitman High School. A survey was conducted and analyzed. While some findings were disappointing, there were indications that this technology was valued. The intern concluded that positive change occurred, and needs to continue.

ACKNOWLEDGEMENT

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Chapter 1

Introduction

<u>Focus of the Study</u>

Technology has changed the face of American education. Distance learning, or

perhaps more precisely distance education, is one element of technology, but one that has

the potential to alter not only the face, but also the entire structure of education as we

know it. The implications for educational practice stager the imagination. Whether it

permits the learner to take a course in Chinese, attend a lecture on butterflies, visit a

museum, participate in professional development, or collaborate with fellow students

within the same district or across the world, distance learning opens vast new horizons.

An added benefit is that these outstanding learning experiences occur without the expense

and liability of physically transporting staff and students, and they are all available at the

educators' finger-tips. With state mandates for distance learning accompanied by an

abundance of grants, the time has come for even under-funded suburban school districts

to explore the new worlds opened by distance learning.

Preliminary to the initiation of this study, the administrative intern, who is also

the author of this study, observed the status of distance learning technology as it existed

within the Pitman School District. By the 2001-2002 school year the Pitman School

District had been the recipient of two grants that provided the basic equipment for

distance learning in four of the district's five schools. However, utilization was another

story. Based on observations and interviews conducted by the intern, it is safe to

conjecture that fewer than 20% of the high school staff showed any evidence of being

aware that this outstanding technology tool existed. A two-hour voluntary in-service (for

which released time was provided) attracted only three staff members, of these only one

subsequently attempted to use distance learning with her classes. The teacher who had

been selected to participate in the grant did successfully utilize distance learning for one

project. Her class collaborated with students from the School District "A" to re-enact the

trial scene from the book, *To Kill a Mockingbird*. This teacher was identified by the

author of this study as an ally in the campaign for promoting distance learning.

During the past several years, observation by the intern indicated Pitman's

technology initiative to be generally understaffed. While grant monies may have provided

equipment, that factor alone did not guarantee utilization. To address that problem the

intern concluded that a professional development initiative was needed. The distance

learning program in Pitman needed an organizer, a facilitator, perhaps to phrase it more

succinctly, a champion. It appeared to the intern that someone must organize a plan to

create awareness of distance learning as an educational tool and to facilitate the use of

this extraordinary learning tool.

Distance learning is based on sound educational practice. It incorporates several

concepts advocated by the Interstate School Leaders Licensure Consortium's

Standards for School Leaders, often referred to as ISLLC. Primarily, distance learning

reflects the concept of ISLLC Standard #2 in that it fosters the role of technology in

promoting student learning and professional growth and provides a tool for teaching and

learning (Ubben, Hughes, & Norris, 2001). Secondly, the New Jersey Core Content

Curriculum Standards incorporate the use of educational technology as part of a

"Thorough and Efficient" education. The Descriptive Statement for Standard 2 in the

Cross-Content Workplace Readiness Standard states,

> "Students will be expected to develop skills in the use of information, up-to-date
> educational technology, and other tools to improve learning, achieve goals, and
> produce products and presentations. They will learn to develop, locate,

summarize, organize, synthesize, and evaluate information. Students will be expected to use technological tools, such as telecommunications networking, for problem-solving, writing, and research" (http://www.state.nj.us/njded/cccs/05ccwrstan2.html).

Using these standards as a foundation, the intern focused on developing and executing a plan to encourage the infusion of distance learning into the educational program of Pitman High School.

Much of the impetus and initiative for this distance learning project is grounded in the New Jersey Department of Education's Pairing and Sharing Grants. As part of Goals 2000 the New Jersey Department of Education's Department of Technology provided technology grants the purpose of which were to "share culture and technology via distance learning" (http://www.lr.k12.nj.us/site/lenape/parandshar.shtml).
As stated by the Department of Education the program purposes were:

- To promote the sharing of resources between pairs of school districts;

- At least one of the partners in each pair must be an economically disadvantaged district;

- To establish distance learning activities and connectivity that provide students with increased access to resources over distances;

- To share demonstrably effective innovative instructional programs for the achievement of the standards; and

- To support the equitable distribution of teleconferencing capacity, staffing, connectivity and professional development.

The monetary grant to each school was $125,000 (http://www.state.nj.us/njded/techno/pairshare/index.html).

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A list of the schools that formed partnerships for this grant project and other relevant data may be viewed on the New Jersey Department of Education's web page (http://www.state.nj.us/njded/techno/pairshare/abstract.htm).

Many of the participating schools have posted project data and other pertinent information regarding the success of these projects on their individual web pages. Among the school districts that have done this are School District B (http://www.pinehill.k12.nj.us/technology/Pairshare/pairshare.html), and School District C (http://www.lr.k12.nj.us/site/lenape/parandshar.shtml).

<u>Purpose of the Study</u>

The intern wanted to learn how a well-organized, pro-active plan for the infusion of distance learning into the curriculum, accompanied by a staff facilitator, would impact the utilization of that learning tool by the teaching staff of Pitman High School. The intern anticipated that as teachers became aware of the potential of this tool, they would begin to expose their students to a wealth of exceptional learning experiences. It was further anticipated that this would occur on an increasing basis as teachers discovered that there was someone available to support them in the use of the learning tool, as well as to mentor them through their initial forays into the unknown.

The purpose of this study was to understand how a well-developed procedure to facilitate distance learning for the staff and students of Pitman High School would impact teaching practice and student achievement using a case study design. The study would result in an evaluation that should be of interest to teachers, and administrators. Additionally, the intern sought to examine how the expanded use of distance learning at Pitman High School would provide students and teachers with an opportunity for innovative, creative, and interactive educational experiences.

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From a broader perspective, distance education addresses the digital divide. The digital divide is a recurring concept in the literature on educational technology and may be defined as the divide between those with access to new technologies and those without (Hansen, 2001). It was hoped by the intern that an additional result of infusing distance education in to the curriculum would be to address this gap, however small, as it existed in the Pitman School District (2001).

Definitions

Asynchronous distance education: Communication in which interaction between parties does not take place simultaneously.

DFG: The New Jersey Department of Education introduced the District Factor Grouping system (DFG) in 1975. This system provides a means of ranking school districts in New Jersey by their socioeconomic status (SES). The first DFG was based on data from the 1970 Census. A revision of the DFG was made in 1984 to take into account new data from the 1980 Census and to slightly change the theoretical model of socioeconomic status. The DFG was motivated by research conducted in the late 1960's and early 1970's that showed a strong relationship between socioeconomic status and educational outcomes.

Digital divide: The "digital divide" is the divide between those with access to new technologies and those without.

Distance Education: As defined by Michael Moore, director of The American Center for the Study of Distance Education, Penn State, from the text *Distance Education: A Systems View,* co-authored by Greg Kearsley, California: Wadsworth Publishing Company, 1996, 2. Distance education is planned learning that normally occurs in a different place from teaching and as a result

requires special techniques of course design, special instructional techniques,

special methods of communication by electronic and other technology, as well as

special organizational and administrative arrangements.

Distance Learning: The desired outcome of distance education.

ETTC: Educational Technology and Training Center. Regional centers

established by the New Jersey State Department of Education for the purpose of

providing training in educational technology to educators.

IP number (Internet Protocol Number): Sometimes called a dotted quad. A

unique number consisting of 4 parts separated by dots, e.g. 165.113.245.2

Every machine that is on the Internet has a unique IP number - if a machine does

not have an IP number, it is not really on the Internet. Many machines (especially

servers) also have one or more Domain Names that are easier for people to

remember.

ISDN lines: Integrated Services Digital Network (ISDN) is a telecommunications

standard allowing communications channels to carry voice, video, and data

simultaneously.

ISLLC Standard: The Council of Chief State School Officer's (CCSSO) Interstate

School Leaders Licensure Consortium's (ISLLC) standards for school

administrators as contained in the *Interstate School Leaders Licensure*

Consortium: Standards for School Leaders. These standards were developed

in order to enhance the quality of educational leadership. They are now used in

more than 35 states.

NJCCCS: New Jersey Core Curriculum Content Standards: In its quest to define a

"Thorough and Efficient" education system, New Jersey has instituted Core Curriculum

Standards. These 61 Core Curriculum Content Standards and related progress indicators are designed to be the focus of all school districts across the State for the next 10 years. Fifty six standards define expected results in 7 academic areas:

Synchronous distance education: Communication in which interaction between participants is simultaneous. An example of this is "real time" videoconferencing.

Teleconference: Two way electronic communication between two or more groups in separate locations via audio, video, and/or computer systems.

Videoconference: A teleconference including two way video.

Virtual classroom: A classroom system that provides the same opportunities for the teaching and learning process beyond the physical limits of the traditional classrooms' walls by means of electronic communication networks.

Limitations of the Study

As this project began, the greatest limitation was that the Pitman School District had just completed an entire school year in which there had been on-going, unsuccessful contract negotiations. It was an abnormal school year characterized by a disgruntled teaching staff and by the lack of volunteer initiatives. Since contractual agreement was reached during the summer of 2002, the intern hoped that the staff would begin the new school year with a quick return to their highly professional and educationally active norm. One problematic result of the new contract was that it required academic teachers to teach one additional class, or six periods per day. The result of this change was that, while teaching responsibilities were increased, preparation and planning time were decreased. This placed serious limitations and time constraints on the teachers who were targeted by the intern for participation in distance learning initiatives. Since there would be no compensation for participation in this program, the intern was faced with the

difficulty of finding a way to implement the program without infringing on non-contractual time.

To address some of the above concerns, the intern volunteered to develop and present a distance learning workshop for the Gloucester County In-Service Day scheduled for November 2002. It was hoped that this mandatory program would help to eliminate some of the staff's motivational problems by providing time to introduce them to the educational advantages of infusing distance learning into their programs. Ideally, the teachers would, also have released time to participate in professional development workshops on this topic.

There was no anticipation of financial restraints on the use of the ISDN lines for distance learning. While funding for existing programs and technology has generally been available in Pitman, funding problems are always a consideration and possible limitation in public education.

A final consideration of the limitations inherent in this project was its dependence on technology--hardware, software and technology staff. While there was no on-site technology support staff at the high school prior to the 2002-2003 school year, the district was advertising for a full-time technology assistant for the Technology Systems Administrator during the last week in August 2002. This person was hired and became the much-needed, on-site technology staff. A positive factor was that the distance learning equipment was in the media center at the high school, which facilitated access for the intern who is also the high school educational media specialist.

Setting of the Study

Distance learning is pervasive. One does not infuse distance learning into an educational program in isolation. However, the nature of distance learning is such that,

while the students are physically stationary, they are transported via this "window on the world" to world--wide, outstanding, educational experiences.

At the most basic level, there was collaboration between and among schools within the Pitman School District. Ideally, the scope of interaction went far beyond the confines of the district. In fact, this was one project of which it could truthfully be said, "the sky is the limit". While the focus of this project was to expand the use of distance education as a tool to promote student learning, it was also a tool to promote professional growth. It functioned as a tool for teaching and learning, thus also meeting the criteria established by Ubben et al. (2001).

The primary site of the case study was Pitman High School, which is located in the Borough of Pitman, and is a part of the Pitman School District. Pitman is a K-12 school district in Gloucester County, which is in southwestern New Jersey. The student population of the high school numbered approximately 528 and there were 60 members of the teaching staff. The population for the study was both the entire student body, as well as the staff of Pitman High School. By extension, since the nature of distance learning is that of an interactive communication tool, which cannot be mastered in isolation, each learning experience extended beyond Pitman High School. As it reached its potential for enriching the educational experience, distance learning opened new vistas of world-wide experiences. Therefore, it achieved the goal of the intern in that the scope of interaction went far beyond the confines of the district to provide a "Window on the World" for Pitman students and staff.

A description of the distance learning facility at Pitman High School is provided in order to provide clarity of understanding for the reader of this study. When the high school was constructed in 1972, part of the media center complex was a room for audio-

visual equipment storage and seminars. Over the intervening years this room's usage shifted increasingly from seminar to storage. During the past six years a small area was "chiseled" out of the storage to provide space for a miniscule TV studio. With the advent of distance learning equipment for the 2001-2002 school year, an ambitious re-design of the room was undertaken. Much print material and infrequently used or older audio-visual equipment, as well as much shelving was eliminated to create a dual purpose open area. This newly opened area serves as the TV studio on a daily basis and as a distance learning classroom on as "as needed" basis. The actual distance learning equipment is simple. It consists of a large, black cabinet containing a video monitor for the videoconferencing, and a storage unit for the remote controls, document camera, and any other peripherals. It has a camera mounted on the top. When needed, it is rolled to the front of the studio area and seating for 20-25 students is arranged. Additional wiring was installed to facilitate use of this equipment in the main area of the media center, in order to accommodate larger groups of students or to share a special event being staged in the media center with another school or site.

The Borough of Pitman, according to the 2000 census, has a population of 9331 people. Demographically the population is 97% white, 1% Black, 1% Asian, and 1% Hispanic. The Socioeconomic status (SES) is essentially middle class. This determination is based on the NJ State Department of Education's designation of a District Factor Group of "DE". District Factor Groups range from the lowest SES of "A" to the highest "J". The DFG is an index of socioeconomic status created by the use of a composite statistical index. This index utilizes seven categories from the census data. These are:

1. Percent of population with no high school diploma
2. Percent with some college

3. Occupation

4. Population density

5. Income

6. Unemployment

7. Poverty (www.state.nj.us/njded/finance/sf/dfgdesc.shtml).

Physically the Borough is located approximately fifteen miles southeast of

Philadelphia and consists of 2.29 square miles (The New Jersey Municipal Data Book,

2001). Pitman was founded in the 1800's as a Methodist Camp Meeting and continues to

maintain a church and family oriented atmosphere into the 21st century

(www.pitman.org).

Pitman has a paid police force of 18 and 3 volunteer fire companies. The violent

crime rate in 1999 was 0.4 per 1000 (New Jersey Municipal Data Book, 2001). The

governmental structure consists of an elected Borough Council from which a Mayor

and Council President are selected internally. Both political parties are represented on

council. The mayor, who has been in office for more than 10 years, is a Republican.

The Pitman School District is a K-12 district with 5 schools--one high school, one

middle school, and three elementary schools. The total district population for

2000-2001 in grades K-12 is 1,710 (New Jersey Municipal Data Book, 2001). The

Pitman Board of Education, which is a Type II school board, consists of seven

members elected for 3 year terms. There are 6 men and 1 woman on the board.

The board president has been on the board for more than 10 years. However, due

to a variety of circumstances including deaths and resignations, there are 5 members who

have been on the board for less than 2 years. The most recent New Jersey School Report

Card provides the following information about Pitman Schools. The first language

spoken at home is English for 100% of the students. There are 13 administrators in the district, which provides a student to administrator ratio of 130.2:1. The faculty to administrator ratio is 12.5:1. Pitman has fewer administrators than the state average, but a better student/faculty per administrator ratios than the state average (New Jersey School Report Card http://nj.evalsoft.com/).

The school district administrative team is lead by a Superintendent of Schools, an Assistant Superintendent for Curriculum and Instruction, and an Assistant Superintendent for Business. Each of the five schools has a principal. The middle school and high school each have an assistant principal in addition to a principal. The other administrators are the high school Director of Student Personnel Services, the Director of the Child Study Team, and the Director of Food Services. Of the administrators and teaching faculty, 72% hold a BA/BS degree; an additional 28% hold both a BA/BS and an MA/MS. At the present time, there is only one administrator with a PhD or EdD degree. Total per pupil comparative cost is $8,755 for the 2001-2002 school year (http://nj.evalsoft.com/).

Pitman High School is one of New Jersey's smaller high schools, as evidenced by the enrollment in grades 9-12 of 528 for the 2000-2001 school year. There are 60 staff members and a student/faculty ratio of 10:1. The average class size is 18.0. The school has an excellent reputation and is infused with a great deal of "Pitman Pride" as demonstrated by Pitman High School Principal's narrative in the New Jersey School Report Card for 2000-2001 which provides the following characterization of the school.

> "The New Jersey School Report Card continues to show Pitman High School as one of the premier high schools in the state. Located in a residential community committed to the education of its youth, Pitman High School graduate students

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are academically and socially successful. They are well equipped to assume the challenges of a responsible citizen in a demanding society. The Class of 2001 graduated 107 students, 86% of whom will continue their education at the post-secondary level. Pitman High School continues to send students to some of the most competitive colleges and universities in the country. Our students are well represented at the Governor's schools, as Bloustein scholars, and National Merit Scholars. In addition, Pitman High School's SAT scores continue to be above the state and national average in both math and verbal scores. Students have an opportunity to participate in seven Advanced Placement courses, in addition to a full honors and college preparatory curriculum. Special needs students have the advantage of a full curriculum that provides the best program in the least restrictive environment. Our Special Education staff at Pitman High School fully embraces the concept of in-class support and demonstrates that philosophical approach through successful team teaching."(p. 2)

While many Pitman High School students are anxious to leave Pitman

to attend college in other states, a substantial number of them return to Pitman to raise

their families. The ubiquitous slogan, "Everybody Likes Pitman", may be a valid

indicator of community sentiment.

Organization of the Study

The remainder of this study will be organized as follows:

Chapter 2   Review of the Literature

Chapter 3   Design of the Study

Chapter 4   Presentation of Research Findings

Chapter 5   Conclusion, Implications and Further Study

Chapter 2

Review of the Literature

"Who dares to teach must never cease to learn." John Cotton Dana

Fifteen years ago educators who incorporated educational technology into their students' learning experiences were on the leading edge of the technological revolution. Today, in most educational settings, it is unusual to find a teacher who does not infuse technology into routine classroom practice. As educators continue to develop professionally, they are discovering the scope of enrichment and the benefits available to their students via educational technology in general and via distance learning resources specifically.

Teachers and administrators are increasingly embracing distance learning technology. This trend should not be unexpected, since the literature provides numerous examples of distance learning success stories. In fact, the literature reveals virtually no evidence of failure. This statement needs to be qualified by stating that success with any technology obviously requires some degree of training, support, and properly functioning equipment. In the research surrounding this burgeoning field of technology, the few negative comments that occur focus on the lack of socialization in asynchronous distance learning and with problems created by inflexibility of school class schedules in synchronous distance learning.

The current trends show the infusion of distance learning into the curriculum being strongly encouraged, if not mandated, by state departments of education, thereby making this technology increasingly available to teachers and learners. Most researchers speculate that in the foreseeable future distance learning initiatives will have a major

impact on learning programs from pre-kindergarten through the college and university level. Oliver Wendell Holmes said, "One's mind, once stretched by a new idea, never regains its original dimensions." After a survey of the literature, it is possible to conclude that distance learning has the potential not only to stretch minds, but also to move learning to vastly expanded dimensions. It has the potential to open "windows on the world" and break through conventional boundaries, so that the sky truly is the limit.

From Sub-Saharan Africa to Woodbury, New Jersey, distance learning initiatives are the source of inspiration for articles in publications that range in diversity from *The Chronicle of Higher Education (*Arnone, *2001)* to the local newspaper, *The Gloucester County Times* (Arrington, 2002). This wide range of diversity challenged the intern to examine the literature to determine what qualities and positive attributes of distance learning accounted for its increasing use and acceptance.

In the *ASHA Leader* Hallett (2000) suggested one possible element stating that, "technology can improve learning by giving the classroom experience-like quality, in contrast with traditional text-based methods"(p.4). Hallett further elaborates on experience as "Knowing something because it has been directly seen, heard, felt, or otherwise sensed"(p.4) and describes it as a powerful teaching tool (2002).

Dewald, Scholz-Crane, Booth and Levine (2000) acknowledge that "no one technology can deliver every type of learning experience that is needed. The type of instruction chosen depends on the instructional material and the instructional goals" (p. 33). They elaborate on this concept by emphasizing the importance of pedagogical objectives and the incorporation of active learning as vital elements of the distance learning experience. Hanson and Maushak (1996) as cited in *Teaching and Learning at a Distance*, by Simonson, Smaldino, Albright and Zvacek (2000) expand the thought

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process regarding distance education as a learning tool in stating,

> " The research clearly shows that distance education is an effective method for teaching and learning. Future research needs to focus on different populations particularly K-12 students; psychological and social attributes of the learner; the impact of distance education on the organization; and the contributions of different media attributes to learning outcomes." (p. 226)

It was this challenge regarding future research that influenced the intern's decision to study the educational impact of distance learning or distance education on Pitman High School (the organization), as well as its impact on the learner. The purpose of this study was to analyze the effects of a well-organized, well-facilitated, pro-active plan for the infusion of distance learning into the curricula of Pitman High School. The study examined the impact of this learning tool on both students' learning experiences and the pedagogical practice of the teaching staff of Pitman High School.

However, prior to engaging in the study, there were preliminary questions to be asked and answered. Perhaps the most basic questions involved a definition or overview of distance learning, and verification that it should, in fact, be infused into a school's curricula. Additionally, the intern wanted to know what the research said about the specific challenges and implication for educators. If distance learning is, in fact, a viable educational tool, which elements of good teaching practice apply and which need to change to most effectively use this tool? Finally, the question arose as to how one would evaluate the process and assess student achievement when utilizing distance learning.

The type of distance learning practice that was addressed in this study was synchronous distance learning, also called videoconferencing or video teleconferencing. Joseph Salvati (2001) tells us that synchronous distance learning in grades K-12 can be a "window on the world", and change the concept of school by removing "traditional boundaries and limitations of time, physical space, and educational resources"(p.276), but

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that this process takes commitment (2001). Salvati cautions the educator to continually ask the question, "Is distance learning technology the best/only way to accomplish this task?" (p. 278). He reminds us that this is our opportunity to learn from primary sources and connect with experts in all fields. Essentially, it is a way to provide the best educational opportunities for our students (2001). This concept is reiterated by Lederman and Niess (2000) who state that distance learning, or any technology-based learning, should support sound curricular goals and should not be developed merely because technology makes them possible.

The search for a specific definition of distance learning produced wide results. However, most definitions reflected several of the same elements. Throughout the literature, distance learning is also referred to as educational videoconferencing and in some instances is referred to as the product of distance education (Simonson et al., 2000). In their book, *Teaching and learning at a distance*, Simonson, et al. (2000) cite Dan Coldeway's theory of distance learning as a framework having two variables, those of time and place, and four approaches. These approaches are same-time, same-place education, different-time, same-place education, same-time different-place education and different-time, different place education. These approaches or categories may describe traditional classroom education or distance learning. However, distance learning environments are by definition different-place education, but can be either same or different time.

> "Instruction can take place in different places at the same time when telecommunication systems are used. Often, television is used to connect the local classroom with the teacher and students to learners at a distance. Satellite, compressed video, and fiber-optics systems are increasingly used for same-time, different-place education. This approach is also called synchronous distance learning " (Simonson et al., 2000, p. 7)

Asynchronous distance learning, which generally involves different-time, different-place education, and is most often distributed via web-based systems, will be discussed later in this chapter. All sources examined by the intern identify distance learning as one where separation of the student and the teacher is a fundamental characteristic. A generalization of the findings throughout the literature suggests that distance learning may be used to increase the access of all learners to resources, as well as to equalize the experience of the remote learner and the local learner.

Distance learning workshop materials from the Camden County (New Jersey) Educational Technology and Training Center (ETTC) provided the following functional characterization of distance learning.

- Delivers quality curriculum and instruction to schools via an integrated system of voice, video and data

- Insures equal access to education services for every student, teacher, and administrator

- Offers access to people, places, and ideas, regardless of geographic constraints

- Has the potential for bringing high quality curricula to all students

- Creates opportunities for cross-cultural interaction

- Links schools to each other and to the outside world

- Includes, but is not limited to instructional opportunities, electronic field trips, professional development, and broad information access

- Provides all students with access to expanded course offerings and unique learning opportunities

- Provides a link with the business community

Distance learning expands educational opportunities as students participate in

activities without regard to socioeconomic, cultural, and linguistic backgrounds. (Camden Co. ETTC Workshop Manual, February 2000). One of the basic goals of the Camden County ETTC is to support technology initiatives by providing staff development and training members of the educational community within their geographic area (Smith, 1999).

The Pacific Bell web-site defines videoconferencing technology as two or more people at different locations who can see and hear each other at the same time, sometimes even sharing computer applications for collaboration. This web-site also reinforces the qualities enumerated by the ETTC Training (http://www.kn.pacbell.com/wired/vidconf/index.html).

As the intern examined the research on distance learning, she found extensive material supporting distance learning experiences, both asynchronous and synchronous. Asynchronous distance learning is a worldwide trend that has developed extensively over the last ten years. Generally asynchronous distance learning involves different-time, different-place education, and is distributed via web-based systems. Instruction utilizes a variety of pre-recorded materials which allow students access at any time and allows students to proceed at their own pace (Moore, 2002). This practice echoes the motto of the Florida Virtual High School which is "Any place, any path, any pace" (Silverman, 2001, p.29). Asynchronous distance learning has been widely adopted as a resource both to enhance classroom instruction and to distribute course materials by colleges and universities throughout the world. The Thomson Learning organization annually publishes the *Guide to Distance Learning Programs* (formerly *Peterson's Guide to Distance Learning Programs)*. The 2001 edition of this publication describes over 3000 on-line undergraduate and graduate courses (*Guide to Distance Learning Programs,*

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2001). By 1998, over 60% of all community colleges were offering on-line courses (Moore, 2002). Among American colleges and universities, support for on-line courses is both strong and vocal. Evidence of this is provided by Russell Rowe who says of Southern Missouri State University's on-line program, "It is an altruistic phenomenon. We are equalizing education" (Silverman, 2001, p.29). The trend also extends to the high school level where numerous virtual high schools exist. As previously stated the flexibility of on-line courses for the learner is reflected in the motto of the Florida Virtual High School, "Any place, any path, any pace" (2001, p.29). Dan Johnson speculates in *Futurist* that lifelong on-line learners will eventually outnumber traditional college-age students (Johnson, 2002).

The status of asynchronous distance learning as a worldwide trend is evident throughout the literature. In Australia, the shortage of nurses in remote areas is addressed by on-line nursing programs (Australian Nursing Journal, 2002). In China on-line programs have been growing since the 1970's, and in Europe there is an enrollment in distance learning courses of 2 ¼ million students. Even in Sub-Saharan Africa distance learning is practiced at a basic level (Simonson et al., 2000). One of distance education's many uses by the United States government is the distribution of Military Intelligence courses via the web (Daley, 2002).

This study focused on synchronous distance learning. The choice of synchronous distance learning was based on the availability of the equipment within the Pitman School District and its potential for curriculum enrichment, as opposed to an asynchronous system designed primarily for course distribution to individual students and/or classes. The areas for potential enrichment utilizing this learning tool include electronic field trips, student collaboration on a worldwide basis, and access to classes

not generally available to students in a small high school.

To effectively use distance learning for the classroom, it is important to remember that the same elements essential to good educational practice in the physical classroom apply to the virtual classroom or distance learning setting. Some of these elements are outlined by Grenville Rumble (1989) as cited by Simonson et al. (2000).

- "In any distance education process there must be: a teacher; one or more students; a course or curriculum that the teacher is capable of teaching and the student is trying to learn; and a contract, implicit or explicit, between the student and the teacher or the institution employing the teacher, which acknowledges their respective teaching-learning roles" (p. 20).

- "The teaching/learning contract requires that the student be taught, assessed, given guidance and, where appropriate, prepared for examinations that may or may not be conducted by the institution. This must be accomplished by two-way communication" (p. 20).

Teaching strategies do not differ radically from general classroom practice, however some changes were identified. These are:

- Behaviors that personalize the class

- Technology management strategies

- Methods for acquiring student feedback

- Methods used to manage student participation

- Active learning strategies (Baker, 1995 as cited by Simonson, et al., 2000).

The role of the educator in distance education is both similar and different from that of the educator in a traditional setting. Traditional learning theory and good practice still apply. However, there are unique challenges. Since distance education is usually as new to the students as to the instructors, extra preparation regarding the setting and their responsibility is beneficial. Repeatedly in the literature it is suggested that while some traditional lessons may adapt well to the distance setting, some may require innovation.

When collaborating with other schools there are hidden obstacles. Some of these are as simple, yet complicated, as the incompatibility of the class period schedules for collaborating high schools (Salvati, 2001). General principles of good pedagogical practice still apply. Among these practices are, having clear objectives, maintaining flexibility, encouraging participation and identifying unifying threads (http://www.kn.pacbell.com/wired/vidconf/index.html).

Often the sites that an educator would choose to visit via a teleconferencing experience promote good teaching practice and provide excellent materials. An example of this are the resources available from the Liberty Science Center in Jersey City, New Jersey. These materials, which may be obtained on-line, include lesson formats and information about the New Jersey Core Curriculum Science Content Standards. They can be found on the Liberty Science Center site for Electronic Field Trips (http://www.lsc.org/school_resources/eft/econnect.html).

As in traditional lesson design, consideration of the learner is the central issue. Among the questions that the educator should consider are the following:

- What are students' ages, cultural backgrounds, interests, and educational levels?

- What is the level of familiarity of the students with the instructional methods and technological delivery systems under consideration?

- How will the students apply the knowledge gained in the course, and how is this course sequenced with other courses?

- Can the class be categorized into several broad subgroups, each with different characteristics (Simonson et al., 2000)?

When engaging in electronic teaching and learning, there are additional elements for consideration that go beyond traditional good practice. The Pacific Bell

web-site offers guidelines for this. It is referred to as a remote, interactive lesson plan matrix and may be developed into a rubric for planning that combines elements of the traditional and electronic.

This matrix includes:

- Learner outcomes – What do you expect your learners to accomplish?

- Methods and Activities – How will you convey the topic (lecture, discussion, hands-on activity)?

- Materials – What audio/visual aids, handouts, etc. Will you use to support your instruction?

- Time - Attempt to estimate how much time it will take

- Equipment Cues – Do you need to demonstrate with a document camera or play an audio clip?

- Notes – Do you need to prepare a visual or get handouts to remote learners?

- Focus on learning

- Set expectations

- Provide Support materials

- Engage students with variety and interaction

- Reduce distractions during learning activities, and

- Encourage dialog (http://www.kn.pacbell.com/wired/vidconf/index.html).

Each of the preceding six points are subject heading links on the Pacific Bell distance learning web-site and are linked to extensive related information and resources. Additional recommendations made for the "electronic" teacher on this web-site include:

- Keeping time spent in lecture to 30% - 50% of the total time

- Include breaks

- Involve the remote facilitator or guest lecturer in the lesson

- Establish rapport with the remote learners. Avoid the "we/they" mentality

- Inform the remote learners about what to expect

- If some of the lesson can be done prior to the video connection (print materials, emails, World Wide Web resources, etc.), do it!

- Determine what support is needed to make the lesson a success

- Include evaluation time (http://www.kn.pacbell.com/wired/vidconf/index.html).

In their research on teacher beliefs and practices regarding technology, Iding, Crosby and Speitel's (2002) findings support the concept that good educational practice in the use of technology transfers to the use of distance learning. As in good educational technology practice in general, the equipment must be available and functional. The educator should provide experiences for the students that are relevant, and technical support for the teacher must be readily available, preferably on site.

A peripheral, but important, issue of lesson planning and structure deals with intellectual property rights, and basic concepts of copyright and fair use. It is suggested that the present and future complexities of this issue may require restructuring. However, for the present, Simonson et al. (2000) remind teachers when utilizing someone else's electronic material, it is wise to seek permission. A sample form letter to facilitate this procedure is found in Appendix A.

Throughout the literature there are recommendations for both evaluation of the distance learning programs and assessment of the students. Many authors allude to the fact that distance education programs and even single courses should be accountable to their goals. Wellman (2001) expounds on the concept of maintaining standards of accountability by establishing indicators for evaluation and assessment. Both Wellman

(2001) and Simonson et al. (2000) recommend quantitative and qualitative procedures for evaluation. Dewald et al. (2000) emphasize the importance of aligning assessment with learning objectives. They further stress the importance of focusing assessment on the learner and improving learning, as well as the importance of the participation of the learners in the process. Dewald et al. (2000) also expand the assessment concept to include formative and summative methods of assessment. Incorporated into these formative methods are research journals, worksheets and exercises, interviews, observations and checklists. Summative methods, which are often mandated in the form of student grades, may include rating scales and tests. Dewald et al. (2000) reflect the thinking of many educational researchers in stating that the underlying value of all evaluation and assessment is to improve teaching and learning. Additionally, in the area of assessment of students in distance learning projects, Wade (1999) warns the teacher who is assigning grades, not to view the grades in isolation but to examine performance as a whole.

Simonson et al. (2000) state that, "Just as exemplary 'distance' teaching resembles our best models of face-to-face teaching, assessing student achievement has a core of good practice that remains constant across a multitude of teaching/learning configurations" (p. 206). They cite the obvious need for some method of assessment in order to assign grades. However, they remind the reader that assessment provides a method by which students may understand their achievement as compared to an established set of criteria. Teachers may employ the assessment in determining ways to improve future instruction (2000).

Dick and Carey as cited by Simonson et al., (2000) reiterate the thinking of Dewald et al. (2000) when they state that, "The role of assessment in the instructional

design process is as a corollary to the development of learning objectives, and a precedent to the development and implementation of instructional strategies" (p. 207).

A method for program evaluation found in the literature on distance education is the AEIOU Approach, which consists of five components.

- Accountability. Did the project planners do what they said they were going to do?

- Effectiveness. How well done was the project?

- Impact. Did the project course, or program make a difference?

- Organizational context. What structures, policies, or events in the organization or environment helped or hindered the project in accomplishing its goals?

- Unanticipated Consequences – What changes or consequences of importance happened as a result of the project that were not expected?

(Simonson et al., 2000).

In addition to initial evaluation, Fratt (2002) suggests regular re-evaluation of programs, at least annually.

Conclusion

Lest the reader think that distance learning is a new trend, the literature shows evidence to the contrary. The term "distance education" was used by the University of Wisconsin in their 1892 catalog (Rumble, 1986 as cited by Simonson et al., 2000). Agricultural courses by mail date to the 19th century, and university courses in England, via the television, were offered in the 1950's. The element of innovation is world-wide, electronic distance education (Silverman, 2001).

Distance education is decidedly a "Window on the World". Local students in Woodbury, New Jersey collaborated on a learning project with students in their sister city

in England (Arrington, 2002). Students in Alaska experienced increased academic rigor, new energy and motivation and a broadened curriculum (Fratt, 2002).

Change is evident throughout the educational community. Fulkerth (1998) states that "Distance Education (DE) represents a major change in how students participate in the educational process. This theme of change will both challenge and motivate distance educators and researchers as they strive to understand and develop effective ways to meet the needs of learners around the world"(Simonson et al., 2000, p. 43).

Hallett (2002), Mayer (2001) and Simonson et al. (2000) all reiterate the empirical evidence found throughout the literature regarding the educational aspects of distance learning.

- Distance education is just as effective as traditional education in regard to learner outcomes.

- Distance education learners generally have a more favorable attitude toward distance education than do traditional learners, and distance learners feel they learn as well as if they were in a regular classroom.

- Successful distance education learners tend traditionally to be abstract learners who are intrinsically motivated and possess internal locus of control.

- While interaction seems intuitively important to the learning experience, interaction should not be added without real purpose.

- Focusing on building collaboration and group interaction may be more important than focusing on individual participation.

- Each form of distance education technology has its own advantages and disadvantages in contributing to the overall quality of the learning experience.

One of the few unsuccessful ventures in the on-line learning field is the fact that New York University's for-profit online initiative was discontinued. The University found that the market for commercially prepared on-line courses was far less than they had estimated (Carlson, 2001). However, this may not be entirely negative, since it infers that institutions of higher learning are creating their own specialized on-line course material.

One concern that has been voiced characterizes on-line courses as lacking the human dimension of group interaction which some professors believe contributes more to learning than the content (Natale, 2002). Conversely, Judy Serwatka (2002) states that among the best lessons that students take from distance learning courses is self-directed learning, and a capacity to continue education throughout their lives. In retrospect, it appears that the negative comments are more applicable to asynchronous distance learning than to synchronous.

Salvati (2001) in reviewing the success of the distance learning program in the New York City schools, concludes that distance education can make a significant difference in teaching and learning. One example of this difference cited by Salvati is, "It can virtually eliminate the artificial gap between school levels" making a K-College continuum a reality (p.277). Having said that, he cautions that "Synchronous distance learning programs in K-12 schools are not easily fashioned. They require careful planning, adequate funding, staff support, and a willingness to look at new possibilities"(p. 283). He also identified "Eight Essentials" or elements necessary for a successful distance learning program. In fact, Salvati boldly states that success is in direct proportion to compliance with these guidelines (2001).

1. Commitment of the school principal who must have a clear vision of the project and demonstrate determination for its success

2. A school distance learning champion. Someone to move the agenda, champion the cause and be responsible for getting things done

3. District Support that provides financial, technical and programmatic assistance

4. A school distance learning committee composed of key administrators, teachers, and counselors who consider new applications and address implementation issues

5. A well maintained distance learning room and equipment

6. Distance Learning "Rules of Order"

7. Adequate Funding

8. Active participation in distance learning experiences beyond their school district. Think big. Think different! (Salvati, 2001).

In his "essentials" Salvati has addressed two areas that were also identified by the intern as possible limitations on this case study. The intern voiced concern regarding the need for a technology facilitator and on-site technical assistance as well as a concern about funding. Salvati (2001) stated the necessity of a "distance learning champion", as well as the availability of district financial, technical and programmatic assistance, and adequate funding. The intern attempted to become the "distance learning champion" of Pitman High School. This was achieved by pro-actively increasing the visibility of the benefits of distance learning in faculty meetings, workshops, or whenever possible. Also a basic instructional manual was created and personal support was provided to staff and students utilizing distance learning. Among the eight essentials outlined by Salvati (2001) financing is mentioned two times. It was hoped that, since the essential physical environment had been created and the equipment has been purchased and installed,

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funding would not be a major concern in the Pitman project. The areas where funding was required were for connection to resources or programs that charge fees for their services. There are many free resources, but restricting use to those could have limited the potential of the program. Secondly, connection to remote sites were done via IP addresses and ISDN lines. Most sites for electronic field trips required use of ISDN lines, which were more expensive than IP use. These expenses fell under the district technology budget.

Based on the research, the intern developed a professional development plan for the staff of Pitman High School. This plan was designed to involve the faculty in multiple outstanding learning experiences available through synchronous distance learning. The plan included assisting staff in sound lesson development and technical support for staff efforts in distance education. Among the materials used to facilitate staff efforts in distance education, the intern created or compiled numerous resources. One resource was a basic instruction manual which is found in Appendix B. A comprehensive directory of distance learning sites that would support Pitman High School curricula was also assembled. A copy of this manual is found in Appendix C.

The distance learning project at Pitman High School was based on sound educational principles as clearly defined by educational research. The desired outcome was to enhance learning and create positive change. To paraphrase Fulkerth (1998) our ongoing Distance Education development challenge was to work toward creating student-centered, technology-mediated learning communities in which the technology tools are so seamlessly integrated as to be transparent. As this environment was established it was observed that the "windows on the world" began to open, and the digital divide began to close (Salvati, 2001).

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Chapter 3

Design of the Study

As may be seen from the preceding review of the literature, research supporting

the value of distance education is abundant. It has also been demonstrated in this paper

that progress toward creating "a student-centered, technology-mediated learning

community in which the technology tools are so seamlessly integrated as to be

transparent" (Faulkerth, 1998) had been initiated in Pitman. The remaining element was

to develop a method to conduct action research that would measure the impact of the

originally stated purpose of this study. That purpose was to determine how the

implementation of a well-developed procedure to facilitate the use of distance education

for the staff and students of Pitman High School could impact on teaching practice and

student achievement. Therefore, the intern needed to design a method with which she

could measure that relationship between theory and practice.

In order to conduct this action research, the intern decided to utilize a

questionnaire. A copy of the questionnaire is found in Appendix D. The questionnaire

designed by the intern employed a Likert-type format, and was composed of a series of

neutral statements (McMillan, 2000). The direction was provided by the responses to

these statements as made by the population in the study. The responses fell on a scale

containing five options, in which five is the highest and one is the lowest. By using an

odd number of possible responses, a neutral or middle choice was provided. This

eliminated forcing the respondent to one side of the scale or the other (McMillian, 2000).

Also, as suggested by Mills (2000), in an effort to increase the descriptive nature of the

data, each number on the 1-5 scale was further defined by qualifying terminology and a

percentage rating. The construction of the questionnaire also enabled those responding to the survey to make comments, if they elected to do so.

The questionnaire consisted of five questions. The concepts used as the foundation for the questions were based on concepts found throughout the literature to be fundamental elements of a successful distance education program. Teachers were asked to respond by selecting the answer choices which most closely matched what they believed to be representative of their experience and opinion.

Prior to distributing the questionnaire to the teaching staff, it was necessary for the intern to obtain permission from the Superintendent of the Pitman School District. Permission was granted after an official letter of request, a copy of the questionnaire with accompanying letter to participants, and a copy of the courtesy letter that was to be send to each of the principals was submitted to the Superintendent of Schools. The intern sent a letter to the principal of each school in the sample in which she explained her project and provided a copy of the questionnaire to them as a courtesy. Copies of letters used in this research project are found in Appendix E. The lists of the district faculty used in the survey were obtained from the respective schools.

The population for the survey was selected from a sample of the teaching staff of the Pitman School District. This district has five schools – one high school, one middle school, and three elementary school. Of those schools, all except one elementary school have distance education/videoconferencing capabilities. As part of this project, the intern actively addressed the infusion of distance learning into the educational program at the high school. The Educational Media Specialist at Memorial Elementary School, where distance education facilities have been available for more than two years, has actively championed the implementation of distance education throughout that time period. At the

present time, there is no identified facilitator in the middle school. The primary population and focus of the study will continue to be Pitman High School. However, the intern decided to enlarge the population surveyed to include the staff at Memorial School and the Pitman Middle School to obtain a broader picture of the use of distance education within the school district. By adding these two additional schools to the survey and thereby broadening the population included in the study, the intern hoped to obtain additional supporting data that would contribute to clarity. The total picture created by the survey results would now include, in addition to the high school, an elementary school in which there was an active, long-term champion of technology and the middle school where there was no identified facilitator. The technology advocate at the middle school moved to another school and had not yet been replaced at the time of the study. Since each school's questionnaire would be printed on a different color paper, it would still be possible to study the high school data in isolation from the rest of the study, while using the supplementary data for comparison and support.

Prior to distribution of the survey instrument, the intern conducted a pilot test of the instrument with the department chairpersons and English department faculty at Pitman High School. This was done in order to determine if any revision to the questionnaire was necessary. The plan was to have the questionnaires in each building on a Friday with distribution to faculty members to occur on Monday. Each teacher received the questionnaire, a self-addressed envelope and a letter of explanation that included a request that the questionnaire be returned to the high school by Friday of that week. The letter to the faculty was also intended to convey the intern's regard for their expertise in the field and assure the anonymity of their responses. Copies of all letters prepared for the survey are found in Appendix E.

Upon receipt of the completed questionnaires, the intern analyzed the data. The mean response, on the scale of 1-5, was calculated for each question. This process was repeated for each school. The intern examined this information for patterns, for similarities and differences. The data analysis provided evidence supporting sound educational theory being demonstrated in the practice of the Pitman teachers. It also demonstrated areas that would need attention, if distance learning was to be seamlessly integrated into the educational program at Pitman High School. These data provided the foundation for the conclusions reached in this project.

Chapter 4

Research Findings

In order to complete the action research component of this study, the intern conducted a survey utilizing a five-question questionnaire. The population for the research was the faculty of Pitman High School. Additionally, the intern chose to survey the faculty at the Pitman Middle School and Memorial Elementary School, thereby broadening the population included in the study. The intern hoped this would provide additional supporting data that would contribute to clarity.

The research was both quantitative and qualitative. Quantitatively the intern examined numerical results of the survey and computed the mean for each question for each school. Qualitatively the intern examined the written comments from the teachers responding to the survey. Further qualitative findings were based on observations made by the intern.

Prior to a discussion of the intern's findings, some review of the culture of the three schools surveyed might contribute to the overall picture. The survey results would include, in addition to the high school, which has been extensively described throughout this study, an elementary school and the middle school. In the elementary school there was an active, long-term champion of technology and distance learning. However, at the middle school, for the 2002-2003 school year, it appeared that there was no identified facilitator or even a contact person for the existing distance learning technology. The intern was able to examine the findings for each of the three levels independently. In addition to asking respondents to the survey to identify their grade level from among three choices, K-5, 6-8 and 9-12, each school's questionnaire was printed on a different color paper.

Prior to the general distribution of the questionnaire, the intern conducted a pilot survey. Copies of the questionnaire were sent to each of the Pitman High School department chairpersons, as well as all members of the English Department. These participants were requested to complete the survey, as well as to provide input regarding the content, format and structure. A letter requesting this and thanking them for their cooperation and expertise accompanied the questionnaire. A copy of this letter appears in Appendix F. The return rate for the pilot was eight out of the thirteen distributed which represents a 61.5% return rate. Faculty members responding to the pilot did not indicate any structural changes or corrections to be necessary, but provided some richly descriptive comments. Unanimously they agreed that both a facilitator and in-service training were necessary to achieve successful use of this technology. Their comments also praised distance learning as a tool for learning and collaboration. Several teachers expressed concern about the time that would be required for preparation and planning, especially in a year when most faculty members were feeling the stress of teaching one extra class per day.

The survey instrument was delivered to schools for distribution on Monday, January 13, 2003 with a requested return date of Friday, January 17, 2003. This timeline provided teachers with one full week to complete and return the questionnaire. Of the 108 questionnaires distributed, 53 were returned. This represents a return rate of 49% for the entire district.

The return rate for Pitman High School was 26 out of 45 distributed or 57 %. Questionnaires were distributed only to faculty members who were actively engaged in classroom teaching. Therefore, support staff, such as guidance counselors, the nurse, the School Resource Officer (SRO), and the social worker, were not included. At the middle

school 38 questionnaires were sent out and 15 were returned, a 39% return rate. The number returned from the Memorial Elementary School was 12 out of 25 representing a 48% return rate. A graph showing comparisons of the responses to each question for each school is found in Appendix G.

Tables showing the responses to each question from each school are found in Appendix H.

An analysis and comparison of the responses to each question follows.
For each question in the survey the respondent was asked to provide responses on a scale from 1-5. The values were as follows:

5--Essential, always, nearly always – (I do this or agree with this 81-100% of the time)

4--Very important, very often –(I do this or agree with this 61-80% of the time)

3--Important, sometimes –(I do this or agree with this 31-60% of the time)

2--Unimportant, rarely –(I do this or agree with this 1 – 30% of the time)

1--Never! (I do this or agree with this 0% of the time)

Question One:

"Distance education/videoconferencing is an outstanding technology resource for teaching and learning that is available to my students in my school."

The intern's purpose for this question was an attempt to achieve a sense of the technology culture in each school. Distance learning technology had been available for at least one year each in school surveyed. Therefore, the intern conjectured that faculty members could not respond with less than a "3" on the questionnaire. That response would essentially indicate that they were virtually unaware of the existence of the technology in their building. Incredibly 19% of the high school teachers, 78.5% of the

middle school teachers and 25% of the elementary teachers responded below the mid

point of "3" on the scale. The mean response to Question One for each school was Pitman

High School 3.1, Pitman Middle School 2.21 and Memorial School 4.08. A graph

showing the response of each teacher at Pitman High School to this question is found in

Appendix I.

Question Two:

"Distance education/videoconferencing is a technology tool that I have utilized to

enhance student learning, at least, one time during the past year."

To continue to build a sense of the efficacy of the principles found in the research

as well as to develop a sense of the culture, the intern used this question. How would the

schools differ? Would there be a difference between the elementary school response

where this technology had been supported for three years, the high school with active

support for one year, and the middle school where there was no identified support or even

an identified contact. 88.4% of the Pitman High School teachers responded with a "1".

They had not used the technology. Only three of the twenty-six teachers had used

distance learning in the past or through January of the school year in which the intern was

initiating an effort to promote a plan to foster use of this technology! In the middle

school 93% of the teachers had not used the technology and fourteen of the fifteen

responding teachers answered with a "1". The elementary school had had an active

advocate for distance learning and, having had this technology for three years, was the

"veteran" school in the group. Here the response was that 66.6% had not used the

technology. Overall the mean for each school for this question found Pitman High School

and Pitman Middle School at 1.26 on the scale of 1-5. Memorial School was at 2.08 on a

scale of 1-5. A graph showing the response of each teacher at Pitman High School to this question is found in Appendix J.

Question Three:

"The availability of a faculty/staff member who functions as a facilitator for teachers incorporating distance education experiences into their classroom practice would promote greater use of this technology."

In an attempt to reiterate the principles found throughout the literature as well as in the ISLLC standards regarding distance learning and educational technology in general, the intern formulated questions three and four. These questions emphasized the importance of both a facilitator or "technology champion" to support and mentor the general staff in the use of the technology and the importance of in-service training for specific technologies. Question Three was concerned specifically with the importance of the presence of facilitator or other type of in-house support personnel. The mean response for this question at Pitman High School was 4.15 with only one person in twenty-six responding below a "3". The mean at the middle school was 3.26 out of 5.0 with four out of 15 responding below "3". At the elementary school there was a mean of 3.92 with only one in twelve responding below "3". The findings for this question strongly support the literature. Teachers, from experience, acknowledge a need for support in the area of attempting to use new technologies. Once there is a comfort level, this need begins to decline, especially since teachers begin to mentor each other as their confidence increases. Perhaps this accounts for the mean for the elementary school being slightly lower then the mean for the high school. A graph showing the response of each teacher at Pitman High School to this question is found in Appendix K.

Question Four:

"A better understanding of distance education/videoconferencing, through a staff development (in-service) initiative in this area, would promote greater use of this technology."

Again, as previously stated, the intern was seeking to elicit the response that would reiterate the research stating the need for professional development initiative and staff training, especially in new technologies. The teachers agreed. The mean for Pitman High School was 4.23, Pitman Middle School was 4.06 and Memorial 3.66. A graph showing the response of each teacher at Pitman High School to this question is found in Appendix L.

Question Five:

"Distance education/videoconferencing enhances student achievement by providing outstanding, interactive, and/or cultural educational experiences without having to leave the school building."

Did the teachers understand the value of distance learning/distance education? Would their answers reflect the literature or would their lack of personal experience reflect ignorance of this outstanding technology tool? Had there been enough exposure to awaken the understanding, while leaving the potential for active practice far behind? Here the intern found surprises. In each school only one person responded below the mean of "3". The middle school teachers whose responses had been consistently the lowest in the areas of awareness, practice and perception of solutions, rated distance education the highest with a mean score of 3.92. The high school followed with a mean of 3.8 and Memorial School, where the teachers had the most practical experience, rated distance education 3.75. A graph showing the response of each teacher at Pitman High

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School to this question is found in Appendix M. From a qualitative perspective, the comments made by the faculty members on the questionnaires were insightful. The problem of lack of planning and preparation time anticipated by the intern was prevalent in their responses. Also voiced by the teachers was their strong sense of inadequacy in attempting to utilize this new technology and numerous responses calling for in-service training. One new teacher had successfully used distance learning in a previous situation and had high praise for its capability to provide motivation for students as well as contribution to student achievement, but even this teacher spoke of the need for additional training. There was an overall positive attitude about the technology. The intern was challenged by two responses, one each from the middle school and high school, that stated that this was an outstanding technology, but had no application for the specific teacher's subject area. The intern felt a need to discover what subject area that was and how to expand the horizons of those staff members.

At the middle school level the most disheartening responses were, "This technology does not exist in my building!" and, "I can't comment on something when I am not aware of it or of its potential." Middle school teachers also seemed to have a different perspective as evidenced by their responses. One teacher worried about the collaborative and interactive components as they related to their classes. This teacher expressed concern that their students might behave poorly while interacting with other schools or institutions. For this reason they said they would not attempt to try it. Another teacher related an experience at a conference on distance learning where nothing seemed to work right. This teacher's concern was that if the people running the conference experienced difficulties, "What chance do I have

of having any success?" Again, at the middle school as well as the high school, the recurring response was, "I need training and support if I am to use this technology."

Elementary teachers voiced concerns from their unique perspective. Among the negative comments from the teachers working with the youngest group of children, were concerns about whether their students would be able to sit still. The intern questions why children in an interactive learning experience would be expected to sit still. The teachers also recounted examples of how the equipment does not always function as it should. They stated that this caused high frustration resulting in low usage. Several elementary teachers commented on the high expense of using the equipment as being a deterrent. With regard to the concern about expense, the intern knew that funds had been budgeted for distance learning, and after consulting with administrators was not able to determine what factors caused teachers to be concerned about the cost. One teacher said if she wanted to interact with another class, she would do it in person. Finally, a teacher wondered why she would take a virtual field trip, when she could take a real one and get out of her school building!

An analysis of the findings of the intern's research shows high correlation with the research expounded in the literature surrounding distance learning technology. The intern's findings also showed the differences among the various grade levels. While there were a few isolated teachers who were unaware of the technology and some could not see its relevance to their subject, generally there was much unity of opinion most of which was positive.

The findings of the quantitative analysis was supported by the empirical

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research cited in Chapter Two of this study. Teachers need personal support. Teachers need in-service training. The faculty responses provided a realistic appraisal of the problems. They also showed unity in appraising the value of this technology as one that enhances student achievement by providing outstanding, interactive, and/or cultural educational experiences without having to leave the school building.

In addition to the quantitative and qualitative findings produced by the survey, the intern utilized other methods to obtain additional input. This was done by observation. The intern employed memos, demonstrations, reminders at faculty meetings, as well as at department chairperson meetings, and an in-service presentation to promote distance education and elicit staff response and interest. The intern's plan for infusion of this technology incorporated consistent effort to bring the distance learning technology to the attention of the faculty. A major initiative by the intern was the five-hour workshop on distance learning entitled "Videoconferencing in a less than Perfect Environment". This workshop was presented in November 2002 as part of the Gloucester County (NJ) County In-Service Day. Thirty teachers participated in this workshop. Of this number thirteen were Pitman School District faculty, and eight were Pitman High School staff members. The program offered extensive exposure to distance learning technique. While the intern would have preferred all staff members attend this workshop, this group was seen as a nucleus of interested teachers who could be "early adopters". If this group found the technology relevant and saw the support provided by the intern to be sufficient, these teachers would start using the technology. Both the literature and experience show that once

teachers begin to successfully demonstrate use of a specific technology, other teachers recognize it as a way to enhance their students' experiences. This workshop transported the teachers via distance learning technology to another Pitman school, the Liberty Science Center, and the Indianapolis Museum of Art. These experiences were preceded by a power point presentation by the intern which gave an overview of distance education. The participant's packet of materials also included a sample of lesson material available on selected distance learning web sites. See Appendix N for materials prepared for this workshop. The positive responses to the workshop support the importance of professional development in the use of technology.

On the teacher evaluations for this in-service the following comments were found. "Great, I learned a lot!" "This was very useful." "I was very impressed with distance learning." "I can't wait to try this." "Experiencing the interactive nature of distance learning was the highlight for me." "I found the 'real time' interaction fascinating." "What a great tool." " I really liked discovering all the distance learning web sites and lesson materials."

Within two months of the workshop, two of the participating high school teachers have actively begun to explore ways to use distance education. One teacher is attempting to conduct collaborative experiences between high school and elementary school science students. The other teacher is in the process of scheduling interactive programs provided by Rutgers University in the area of drama and theater arts. The Family and Consumer Science teacher has expressed interest in scheduling a program, as has a Spanish teacher. In a school climate where most faculty members are adjusting to teaching one extra class per day, the intern

believes that these are realistic results.

The preparation of a manual of information to facilitate use of distance education at Pitman High School was distributed to and explained to all department chairpersons. This material was then presented at all department meetings, and is recognized as another component for the facilitation of this technology. See Appendix B for the information manual.

The chart in Appendix G graphically illustrates that the intern's findings are supported by the research found in the review of the literature on educational technology and specifically on distance learning in Chapter Two. As the literature indicates, specific elements need to be in place for technology to succeed. The findings strongly correspond to the literature on all of the questions. However, it is especially interesting to note on Question Two that the greatest use of this technology has occurred where there is the strongest initiative to facilitate staff usage. Also, the need for support personnel and professional development addressed in the literature is strongly reflected by teacher responses to Questions Three and Four. Having reviewed the findings, the administrative challenge for the intern is to use this information as the impetus to create positive change within the organization.

Chapter Five

Conclusion, Implications, and Further Study

"You are never given a wish without also being given the power to make it true.

You may have to work for it, however" -- Richard Bach.

Conclusion

It has been said, "Rome wasn't built in a day!" After ten months of involvement

with this study, the intern concludes that, at the most basic level, successful infusion of

any technology into the curriculum does, indeed, take work. It requires a plan and a

long-term, concentrated effort.

Whether or not distance learning is the panacea some educators believe it to be

was not the focus of this study. The focus was change initiated by the efficient infusion of

a new technology into the general curriculum at Pitman High School. The purpose of the

infusion of this technology was to enhance student achievement.

Some of the interns concerns regarding limitations voiced at the inception of this

study proved to be significant roadblocks while others did not materialize. Many other

lessons were learned along the way. Among the lessons learned was the fact that, in some

situations, change occurs slowly. Ultimately, it is evident that the intern assumed a

leadership role and sought to be an agent of change.

The intern analyzed the project to determine how various components contributed

to or detracted from its success. In the area of positive results, the intern found that

elements essential to an effective technology initiative cited throughout the literature

were evident in this project. Among these elements were a technology "champion",

strong financial backing and reliable technical support. The intern actively endeavored to

be the technology champion who was the ever- present advocate and facilitator. She

found that the new technology staff member hired at the beginning of the school year was, as anticipated, available to function as her back up support. Thus, the technology support team essential to success was in place and functioned well throughout the year.

In spite of concern voiced early in the program about finances, this never became a problem. Necessary funding was available. Also, throughout the year every effort to utilize the videoconferencing equipment provided flawless success. It worked perfectly every time it was used, thereby putting to rest the concerns about the technology malfunctioning.

In her effort to promote distance learning, the intern assumed the role of a visible and vocal advocate of that technology. From the inception of her effort the intern brought distance learning technology to the attention of the Pitman High School staff. This technology was addressed at faculty meetings and department chairperson meetings. It was the focus of memos and the intern's survey. Distance learning was demonstrated for the faculty, the Board of Education and for selected administrators. An instructional manual that provided all necessary information for use was prepared and distributed, as was a directory of relevant distance learning sites available nation-wide. The intern collaborated with another district educational media specialist to present a countywide in-service program. She also personally encouraged individual staff members to consider ways to incorporate videoconferencing into their lessons. It was not enough!

The weak link in the project was the lack of a focused initiative for professional development directed specifically at all members of the Pitman High School professional staff. In spite of the intern's development of an extensive professional development program for distance learning, only a limited number of staff members were afforded opportunity to participate in this program. The facilitator and well-designed program

were in place, but the mandatory in-service program for all staff did not occur. It proved to be a critical detriment. Staff members responding to the intern's survey voiced this conclusion repeatedly. Their responses on the survey supported data evident in the literature. They did need a facilitator and they wanted in-service training to guide them along the road to infusion of this new technique to broaden their students' experiences. Their response to this question resulted in a mean of 4.23 on a scale where "5" was the highest score.

Further consideration of the components of the program identified another weakness. The review of the literature in Chapter Two included a study by Salvati. That study enumerated "Eight Essential Elements" of a successful distance learning program based on Salvati's long-term experience with this technology in the New York City schools. These elements provided a framework for this study. Salvati boldly stated that success is in direct proportion to compliance with these guidelines (2001).

Two of Salvati's elements that were missing from the distance learning technology initiative at Pitman High School were the involvement of the principal and a school-wide distance learning committee. The role of the principal in this project, while not negative, was also not pro-active. In a small high school with many urgent issues arising every day, the principal cannot become actively involved in all initiatives. In the case of distance learning at Pitman High School, the principal was highly supportive of all of the intern's efforts, but never seemed to demonstrate a clear vision of the project or determination for its success. There were two obvious areas for the intern to remedy for next year. One area was that the principal needs to be pro-actively involved. Secondly, the intern has to admit her failure to embrace the concept of forming a distance learning committee. The lack of such a committee to provide a cross-section of support on a

school-wide basis is perhaps another crucial missing piece. As this project continues into the second year, the intern will move to formulate this committee and actively encourage involvement of the principal.

One of the primary goals of this project was to measure the impact of distance learning on student achievement. As a result of the extremely limited use of distance learning during this study, a measurement of its impact on student achievement did not occur. However, as cited in Chapter Four, the teacher responses to the survey in this area were positive. The teachers responded with a mean of 3.8 to the question describing distance learning as a technology that enhances student achievement by providing outstanding, interactive, and/or cultural educational experiences without having to leave the school building. Limited usage of the technology also prohibited study of its impact on teaching practice.

Implications

As the intern sought to identify additional factors that contributed to the limited use of distance learning technology during the 2002-2003 school year, she discovered an unanticipated limitation. In addition to distance learning, another technology initiative was introduced this year. This technology was a cart of twenty-four wireless laptop computers. While the intern did not plan to be involved in a second technology project, it fell within her scope of duties. This technology also required some training, and support. Since the staff had already embraced the widespread infusion of computer technology into the curriculum, they readily adopted the use of the laptops. They saw this technology as relevant. Support was available, and they began to use it. Feedback from faculty members, as well as observation by the intern indicates that the time restraints mentioned earlier combined with the introduction of this second new technology had negative

impact on the infusion of distance learning into the teaching practice of Pitman High School teachers. Perhaps the Pitman High School technology motto should be "So much technology, so little time".

What change did the intern effect within the organization? The staff is infinitely more aware of distance education technology than they were in September, and some staff members are slowly beginning to infuse its outstanding learning experiences into their lessons. The intern is not discouraged by the use of the word slowly. Experience has shown that Pitman High School teachers have embraced and infused other technologies and they did it slowly. Slow but positive adoption of technology has occurred with computers, email, data projectors, and, this year, with wire-less laptops. The intern believes there is evidence to support the conclusion that the next change will be distance learning.

Further Study

Change is evident throughout the educational community. Fulkerth (1998) states that "Distance Education (DE) represents a major change in how students participate in the educational process. This theme of change will both challenge and motivate distance educators and researchers as they strive to understand and develop effective ways to meet the needs of learners around the world" (Simonson et al., 2000, p. 43). It is expected that this change will undoubtedly include Pitman High School. Salvati tells us to, "Think big! Think different!" (2000). The intern says, "Think big, think different , think that some projects require more extensive groundwork than you might expect."

As the new school year approaches, the intern needs to repeat her performance of the previous year with the addition of pro-active support from the principal, a committee

representative of a diverse group of staff members, and an administrative commitment to a strong professional development initiative.

It has been said, "When you see a man at the top of a mountain, he didn't fall there. He climbed up the mountain." The climb to the top of the distance learning mountain at Pitman High School continues.

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APPENDIX A

COPYRIGHT PERMISSION LETTER

Mrs. Janet Jones
Manager of Permissions
Teacher's Video Company
P.O. Box 4455
Scottsdale, AR 85261   November 1, 2002

Dear Mrs. Jones:

As a follow-up to our email exchange of yesterday (Oct. 31, 2002), I am requesting permission to show your excellent videotape, *The Native Americans*, in my distance education course this winter. Our school purchased this tape from your company in 2002 but did not obtain the transmission rights at that time.

The course is entitled "Native American Culture" and is expected to enroll approximately 120 students, including 10 who will be participating at off-campus location. The course will be transmitted within our school district to 3 elementary schools. A backup recording of the entire class period will be made at the origination site and made available to students who were not present. This tape will be provided for viewing only in a controlled access environment with no reproduction equipment accessible. The tape will be erased after one month.

The anticipated date of use is December 10, 2002. I would appreciate your response by November 24 so I can make alternative course plans if necessary. I do hope you will honor this request, however, because your tape is a highly informative depiction of Native American culture and will be extremely valuable to our students.

Thank you for your consideration. Please contact me directly if I can provide further information.

Sincerely,

Marsha Hahn, Educational Media Specialist

Phone: 856-589-3731   Fax: 856-589-8111   Email: mhahn@pitman.k12.nj.us

APPENDIX B

INSTRUCTION MANUAL FOR DISTANCE LEARNING PROCEDURES

PITMAN SCHOOL DISTRICT

Video Conferencing Steps

TURNING ON THE EQUIPMENT

1. Make sure the camera and television are both plugged into an outlet. (Kindle teachers: you just have to make sure the cart is plugged into an outlet.)

2. Turn on the camera by flicking the switch, which is located on the rear upper right corner when looking at the back of the camera, to the upward position. Once the camera is on, you will see a green light on the front under the lens.

3. Turn the television on by pressing the power button.

4. Take the remote control out of the cart.

5. Take the microphone out of the cart. Make sure the button in the center of the microphone is not depressed and the red because that means it is in a mute mode. If it is, push it so it pops up and the light goes off.

6. The "menu" will appear on the screen.

TURNING ON "PICTURE IN PICTURE"

*This will allow you to see yourself in a small box in the lower right hand corner of the
Screen during the video call. That way you can see what the other site is seeing and
Make sure that your camera is pointed in the right direction.*

1. Using the arrow keys on the remote control, move to the **SYSTEM INFO** button in the upper right corner of the screen.

2. Press the **GO** button, which is the button with the circle located in the center of the arrow keys on the remote control.

3. Icons will appear at the bottom of the screen. The middle icon labeled "User Setup" should be highlighted. This is one of with the man on it. If it's not, use the arrow keys to move to the box. Once the box is highlighted, click on the **GO** button.

4. When the User setup menu appears, make sure that the "Yes" button on the **PIP** line is red. If not, use the arrow keys to move to that line and then to the "Yes" button on the line and click the **GO** button.

5. Click on the **MENU** button on the lower left hand side of the remote control. This will take you back you the "Menu" page.

TO CALL A SITE LISTED IN THE ADDRESS BOOK

1. Make sure you are on the "Menu" page.

2. Use the arrow keys to move to **ADDRESS BOOK,** which is located in the lower left hand corner of the screen.

3. Click on the **GO** button.

4. The "Speed Dial" menu will appear. If the number you want is listed on that screen, use the arrow keys to move to the number and then hit the green **CALL-HANG UP** button located in the center top of the remote control.

5. If the number is not listed in the "Speed Dial" menu, you can click on the **ADDRESS BOOK** icon and then the **GO** button. This will put you into the "Address Book". Use the arrow keys to navigate through the address book to navigate through the address book to locate the necessary number. Then hit the green **CALL-HANG UP** button located at the center top of the remote control.

6. Your television will show the number being called, and you will hear it ringing. As soon as the remote sit picks up, you will see them.

7. To turn Auto Voice Tracking (so the camera will automatically move to the person talking), click on the purple **AUTO** button on the left side of the remote control. You should see a message that says "Auto Tracking On". If a different appears keep hitting the **AUTO** button until you see that message.

8. Start talking.

9. To hang up, hit the green **CALL-HANG UP** button located in the center top of the remote control.

10. Turn the camera and television off

A. TO MAKE A CALL NOT IN THE ADDRESS BOOK

1. From the menu screen, click on the **VIDEO CALL** icon and then hit the **GO** button. A telephone keypad will appear on the screen.

2. Using the number pad on the remote control, type in the number of the site you want to call. *Remember to use the right arrow key to insert a dot in your number.*

3. After the number is entered, hit the green **CALL-HANG UP** button located in the center top of the remote control.

4. Your television will show the number being called and you will hear it ringing. As soon as the remote site picks up, you will see them.

5. To turn on Auto Voice Tracking (so the camera will automatically move to the person talking), click on the purple **AUTO** button on the left side of the remote control. You should see a message that says "Auto Tracking On." If a different message appears, keep hitting the AUTO button until you see that message.

6. Start Talking

7. To hang up hit the green CALL-HANG UP button located in the center top of the remote Control.

8. Turn the camera and television off.

TO TURN ON THE DOCUMENT CAMERA

Use this as you would an overhead projector. It allows you to show a picture up close to the other site.

1. Take the document camera out of the cart.
2. Connect the cable labeled "Document Camera" to the rear of rear document camera.
3. Turn on the document camera
4. Take off the lens cap.
5. Place the document under the camera just as you would if you were reading it (you don't have to put it in upside down).
6. To show the other site the document hit the NEAR button located next to the purple "Auto" button.
7. Three icons will appear on the bottom of the screen.
8. Use the right arrow key on the remote control to move to the document camera icon (this is the middle icon)
9. Click the GO button.
10. The PIP screen will now show the document under the document camera.
11. To zoom in on the document raise and lower the head of the camera.
12. To make the document clearer adjust the ring around the lens of the camera.
13. To switch back to showing your class in the PIP window and to the other site hit the NEAR button again and use the left arrow key to move over the camera icon.
14. Continue with video conference.

PITMAN SCHOOL DISTRICT
DISTANCE LEARNING/VIDEOCONFERENCING/
ELECTRONIC FIELD TRIP
CHECKLIST

Date of Conference:_____ Time:_____

Purpose:_____

Far End: _____

ISDN Numbers: _____ Speed _____

Telephone Number:_____

Near End:_____

ISDN Numbers: _____ Speed:_____

Telephone Number: _____

Technical Contact: _____

WELL IN ADVANCE:

_____ *Practice using equipment*
_____ *Prepare lesson plan and materials and obtain copyright clearance*
if necessary.
_____ *Schedule date and time for videoconferencing*
_____ *Arrange for remote facilitators, guest speakers, technical support,*
etc.
_____ *Reserve equipment/room*
_____ *Consider how you will set up the room (background, seating, ,etc.)*
_____ *For more than two sites (multipoint) Schedule a bridge*
_____ *Deve0lp a back-up plan in case of technical problems*
_____ *Schedule a practice session*

ONE WEEK PRIOR TO CONFERENCE:
_____ *Share your expectations with participants*
_____ *Make sure the remote site has necessary materials*
_____ *Share ISDN and telephone numbers and determine who will place*
the call.
_____ *Find out who to contact is there are problems*
_____ *Practice with remote facilitators*
_____ *Decide what to wear (avoid loud patterns, black, red and white)*

DAY OF THE CONFERENCE:

_____ *Reboot system if necessary*

_____ *Arrange the room*

_____ *Connect with remote site 15-30 minutes prior to the meeting time*

_____ *Check audio, video, lighting, auxiliary equipment, (document camera, etc.)*

_____ *Preview local camera angle and preset angles if possible*

_____*Keep ISDN and telephone numbers handy during the conference*

_____ *View yourself occasionally (Make sure the other end can see whomever is speaking.)*

PITMAN DISTRICT VIDEO CONFERENCING INFO

	ISDN Line **(Akin to phone lines)**	**IP** **(Computer)**
Memorial School	856-256-2690 856-256-2691 Speed: 384 Voice Contact: Sara Bailey 856-589-2526	209.146.26.69 Speed: 768
Middle School	856-256-2034 856-256-2035 Speed: 384 Voice Contact: Chris Morris 856-589-0636	209.146.26.70 Speed: 768
Pitman High School	856-256-7507 856-256-7508 Speed: 384 Voice Contact: Marsha Hahn 856-589-3731	209.146.26.71 Speed: 768
Kindle School	856-589-7501 856-256-7502 Speed: 384 Voice Contact: Jean Ewe 856-589-2628	209.146.26.72 Speed: 768

November 2002

APPENDIX   C

DIRECTORY OF DISTANCE LEARNING SITES

Videoconferencing Adventures

Oh, the places you and your students will go while using interactive videoconferencing! Students can see and hear each other simultaneously whether across the state or around the world. Making videoconference connections outside the classroom increases student motivation and learning. Videoconferencing is ideal for virtual fieldtrips, for collaborations and for community events. Here is a sampling of resources to start your own "videoconference adventures"! - Linda Uhrenholt, Pacific Bell Education Advocate.

Disclaimer: We make every attempt to keep this resource up-to-date; however, things change rapidly and we are not always informed. Please remember that at any given time, this list may contain incorrect information.

Albany Institute of History and Art founded in the 18th century is located in Albany, New York. It is a museum that "collects, preserves, interprets and promotes interest in history." Videoconferencing enables students to take part in a number of virtual field trips from the museum. In "Mummies and Ancient Egypt" students view mummies and learn about the cultures in which they lived. "Facing Portraits" is a program where students take a look at a selection of portraits that reveal personal and cultural values.

Where:http://www.albanyinstitute.org
Who:Ted Lind, Deputy Director for Education and Public Programs
How:LindEW@albanyinstitute.org 1-518-463-9996

Aquatic Research Institute located near the shores of Lake Michigan in East Chicago, Indiana, conducts research related to the "environment and freshwater systems." The Institute has designed interactive videoconferencing programs to allow communication between "divers in the waters of the Great Lakes and students." The Project AquaQuest, as it is called is curriculum and standards-based. "Diving into Math," and "History of the Great Lakes Shipwrecks" are just

two of the many programs.

Where:http://www.arcec.org
Who:Tim Early, Director
How:fishmail@arcec.org 1-219-391-8518

Baseball Hall of Fame nestled in historic Cooperstown, New York, is known throughout the world. The famed museum began collecting its first artifact in 1937 and currently contains over 25,000 artifacts representing "all facets of the game from inception to present times." Videoconference programs often portray historical accounts of America by using museum baseball exhibits.

Where:http://baseballhalloffame.org
Who: Pat Lafond, Education Director
How: plafond@baseballhalloffame.org 1-607-547-0362

Bronx Zoo located in Bronx, New York, is the largest metropolitan wildlife Conservation Park in the United States. "Distance learning programs at the Zoo are dedicated to making connections with science education standards." Award winning programs such as "Pablo Python Looks at Animals" and "Survival Strategies" are just two of many expeditions available. Some programs include Spanish/English handbooks.

Where:http://www.bronxzoo.org
Who:Lee Livney, Education Department
How:llivney@wcs.org 1-718-220-6899

Brownsburg Challenger Learning Center is just west of Indianapolis, Indiana (home of the Indy 500). Challenger Learning Centers across the country "engage students, transforming them into scientists, engineers or researchers by hosting simulated space missions." At the Brownsburg Challenger Learning Center students can participate in these simulated space missions via a videoconference. They also offer topical workshops, virtual tours and special requests.

Where:http://www.brownsburgchallenger.com
Who:Lorrie Bryant, Distance Learning Liaison
HowLearning@BrownsburgChallenger.com 1-317-852-1008

Subscribe to the Collaboration Collage videoconferencing mailing list at
http://www.kn.pacbell.com/wired/vidconf/ed1vidconf.html!

Buffalo Zoo in Buffalo, New York, started back in the late 1800's when a furrier presented a pair of deer to the City of Buffalo! Today the zoo flourishes with a robust animal collection, one of the finest in the country. The education department at the zoo has developed a variety of programming that can be offered via a videoconference field trip such as, "Animal Enrichment" and "Rainforest Experience."
Where:http://www.buffalozoo.org
Who:Rebecca Russo, Distance Learning Coordinator
How1-716-837-3900 x182

California Science Center located in Los Angeles, California, in Exposition Park. Ignite students' imagination while introducing science through videoconferencing. The California Science Center offers curriculum enhancements relating to the Science Center's exhibits. One videoconference example is "Your Insides Out" which relates to the circulatory system. Pre and post activities are all part of the videoconference experience.

Where:http://www.casciencectr.org
Who: Jane Grossman, Educational Technology Coordinator
How: jgrossman@cscmail.org 1-213-744-2063

Cape May County Park and Zoo is one of the best attractions of Cape May Court House, New Jersey. The zoo offers many programs over videoconferencing including "Overview of the Animal Kingdom," in which a collection of animals are used such as the ferret, white tree frog, corn snake and cockroach. Using the barn owl as a videoconference focus during a class dissection of owl pellets makes science come alive! Teacher packets are available and all programs support national

standards.

Where:http://www.beachcomber.com/Capemay/zoo.html
Who:Jennifer Watson, Education Director
How:jennywats@hotmail.com 1-609-465-6832

When students plan a videoconference, they learn communication skills.

Center for Educational technologies & trade; Challenger Learning Center is found on the campus of Wheeling Jesuit University in Wheeling, West Virginia. It is part of the "growing network of centers nationwide that have been Established in memory of the Challenger Shuttle crew." Via videoconferencing students can take part in a four week integrated unit of earth and space exploration, culminating in a two-hour videoconference where students are at mission control for a launch. Students are engaged in a real space mission simulation while learning math and science.

Where:http://davem2.cotf.edu/clc, http://cotf.edu
Who:Nancy Sturm, Director for Challenger Learning Center
How:sturm@cet.edu 1-304-243-2377

Center for Puppetry Arts in Atlanta, Georgia, was established in 1978. Join the largest center in the nation devoted to puppetry by way of videoconferencing, for hands-on curriculum based workshops where students build a puppet from recycled materials. Included in the videoconference topics are "Native Americans", "Discovering Puppetry in Other Cultures" and "Mexico/Mexican Flag!" Current programming focuses on K-5 grade.

Where:http://www.puppet.org
Who:Patty Dees, Education Director
How:pdees-gsams@mindspring.com 1-404-873-3089 x117

Children's Museum of Indianapolis invites students to virtually visit the museum located in Indianapolis, Indiana. The museum can bring its galleries and exhibits to your classroom over videoconferencing. Seventeen experts are on hand to guide

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the programs. Extremely popular, reservations are required weeks in advance, often at set times. "What's My Line" has students interviewing museum staff to discover their lines of work. "Egyptian Mummies" explores real mummies from the museum's collection.

Where:http://www.childrensmuseum.org
Who:Charlene Brombaugh, Distance Learning
How: 1-317-334-4139 x1010

Cincinnati Zoo and Botanical Garden located in Cincinnati, Ohio, is one of the oldest zoos in the country, opening its door in 1875. Via videoconferencing students can take part in activities designed to engage the learner. Theme programs, problem-based learning and zoo careers highlight the zoo's distance learning programs. In "Nobody Likes Me" students explore the important roles of bugs, mice, bats, frogs, and snakes. Accompanying materials are often provided or can be downloaded off the Internet.

Where:http://www.cincyzoo.org/
Who: Ken Freeman, Distance Learning Coordinator
How:ken.freeman@cincyzoo.org 1-513-475-6130

Cleveland Metroparks Zoo in Cleveland, Ohio, brings education to life in their zoo Adventures. Join zoo educators in programs where "biofacts and/or live animals provide an up close, experience" that will be both "enjoyable and educational." Special programs from the trumpeter swan to the wild wolf are long remembered after the videoconference!

Where:http://www.clemetzoo.com
Who:Kate O'Connor, Distance Learning Coordinator
How: ko@clevelandmetroparks.com 1-216-661-6500 x4479

Videoconferencing helps to meet school standards and benchmarks!

Cleveland Museum of Art located in downtown Cleveland, Ohio, is considered one

of the top five art museums in the United States. The extensive art collection
Represents a multitude of the world's civilizations and cultures. All grade levels will
benefit by the videoconferences using the museum's large, diverse education
department. Program descriptions include "Spanish Art" (optional Spanish language
presentation - lead time needed), and "The Art of Adornment: Avenue to Personal
and Social Identity."

Where:http://clemusart.com
Who: Dale Hilton, Distance Learning Coordinator
How: hilton@cma-oh.org 1-216-421-7340 x491

Clowes Memorial Hall of Butler University is situated on the campus of Butler
University in Indianapolis, Indiana. The Clewes' Education Department, with a
mission of promoting lifelong learning in and through the arts, has developed
diverse videoconferencing opportunities for students of all ages. "Turning a Novel
into a Play" is one popular program where students learn how to think and work
together as theatrical collaborators. Several distance learning sessions such as
"Careers in the Arts" are available.

Where:http://www.cloweshall.org/education
Who:Donna Rund, Education Coordinator
How:drund@bulter.edu 1-317-940-8052

Use videoconferencing when a live fieldtrip is not possible.

Coca-Cola Space Science Center is located at Columbus University in Columbus,
Georgia, on the Chattahoochee River! The primary goal of the Coca-Cola Space
Science Center is to "improve learning by making science, mathematics and
technology accessible to all students." The videoconference programs are
interactive and often require teamwork. **Classrooms in Georgia are first in line
for the videoconference programs.**

Where:http://www.ccssc.org

Who: Larry Pallotta, Assistant Director/Coordinator of Visitor Services
How: larry@ccss.org 1-706-649-1486

Columbus Zoo in Powell, Ohio, is one of "only three facilities outside of Florida to care for and exhibit manatees, a rare marine mammal" found along the Florida coast. Take a zoofari videoconference to explore these endangered creatures or join other thematic programs such as "I Want to Work at a Zoo." The zoo offers pre and post videoconference educational packets for students and teachers aligning with national standards.

Where:http://www.colszoo.org
Who: Becky Peters, Distance Learning Coordinator
How: bpeters@colszoo.org 1-614-645-0567

Conner Prairie Museum is an open-air living history museum located in Fishers, Indiana (Hoosier Country). It is a national center for research into the lives of the early 19th century settlers of the Old Northwest Territory. The Museum is committed to offering "its nationally recognized videoconference programming to schools around the nation." Some of the programs listed include, "Native Ways" and "Healing Hands: Medicine in Early Days."

Where:http://www.connerprairie.org
Who:Leanne Bennett
How:lbennett@connerprairie.org 1-317-776-6000 x248

COSI COLUMBUS the "fascination destination" is in the heart of the Buckeye State -- Columbus, Ohio. Join the beautiful new science center (320,000 square foot space) via a videoconference where students will virtually be "dazzled, amazed and delighted." Fresh new programs such as "Dot Dash to Dot Com" or "Gadget Works" feature hands-on participation from students as well as demonstrations.

Where:http://www.cosi.org
Who: Gail Wheatley, Director of Electronic Education

How: 1-614-228-2674 x3147 or 1-888-819-COSI

COSI TOLEDO 41° 39' N 83° 32' W (Toledo, Ohio) makes "science click." COSI TOLEDO science specialists "offer a fresh perspective on the educational field trip concept." Sessions are developed using established national science standards as a framework for fun interaction! Some of the more popular videoconference modules that go beyond the traditional classroom learning are "Roller Coaster Science" and "COSI WOW!" Curriculum materials including post-event extension activities are available.

Where:http://cositoledo.org
Who: Jason Hillyer, Science Specialist
How: hillyer@cositoledo.org 1-419-244-2674 x150

Collaborative learning is practically automatic with videoconferencing.

Cumberland Science Museum "where imagination and curiosity are encouraged" can be found in Nashville, Tennessee. Even if you can't physically come to the museum your students can visit virtually through a videoconference. Presentations such as "Bone-A-Fied Facts" and "Magnets to Motors" will engage students in active learning experiences. Pre-videoconference packets are available from the museum educators.

Where:http://www.cumberlandsciencemuseum.com
Who:Ann Crawford, Reservation Secretary
How:1-615-862-5177

Eiteljorg Museum of American Indians and Western Art located in Indianapolis, Indiana, is "one of two museums east of the Mississippi with both Native American and Western art." Through videoconferencing students are introduced to many of the diverse people that played a role in the American West. In "Faces of the West" students discover two or more interesting historical figures that they may or may not find familiar such as Lt. Henry Flipper, a Buffalo Solder or Stagecoach Mary, a colorful female stagecoach driver.

Where:http://www.eiteljorg.org
Who:Leon Jett
How:1-317-636-9378 x119

Elephant Sanctuary is a natural habitat refuge located in Hohenwald, Tennessee. Students can take a videoconference trip to the Sanctuary -- the only way to visit the Elephant Sanctuary. "Image and voice are transported live, allowing the visitor to view an elephant's daily life without causing any intrusion." Visit Barbara, Tarra and Jenny the elephants that "loaded up their trunks and moved to Tennessee!"

Where:http://www.elephants.com
Who: Carol Buckley, Educational Outreach Director
How: carol@elephants.com (Email is the requested method to schedule.)

Eli Lilly and Company with their worldwide headquarters in Indianapolis, Indiana, is a leader in the pharmaceutical industry. This year, Eli Lilly and Company's educational strategy involves using videoconferencing to enhance science and liberal arts curriculums. Programs scheduled for the year include career panels in marketing, chemistry, biology and manufacturing. Other sessions scheduled are "Chemistry is a Blast" and "Virtual Dr. Bones."

Where:http://www.lilly.com
Who:Christy Krumrich, Associate, Educational Strategy at Lilly
How:ckrumrich@lilly.com 1-317-277-8721

Field Museum located in Chicago, Illinois, was named in 1905 to honor the museum's first major benefactor, Marshall Field. The education department at the museum offers programs "focusing on the diversity and relationships among nature and cultures, as well as the content of its collections." This coming January 2001 students can experience these museum programs via a videoconference.

Where:http://www.fieldmuseum.org
Who:Victoria Fisher, Manager Education Media Division

How:vfisher@fieldmusuem.org 1-312-665-7557

Videoconferencing is powerful! Teachers can meet over videoconferencing for

staff development.

Fort Ancient Museum is located on a 235-foot bluff overlooking the Little Miami River, Oregonia, Ohio. It "features 18,000 feet of earthen walls built 2,000 years ago by Native Americans as a ceremonial gathering place." Students who participate in the museum videoconference programs will learn about the cultures of Native Americans, past and present. In a program called "Archaeology" students are instructed in basic terms, methods, and tools of archaeology.

Where:http://www.ohiohistory.org/places/ftancien
Who:Jack Blosser
How1-800-283-8904

Georgia Music Hall of Fame in Macon, Georgia, offers an extravaganza of music information via compressed videoconferencing. Celebrate the music of Georgia in "North, South, East & West" featuring famous musicians of Georgia TLC, Lynyrd Skynyrd, Indigo Girls, James Brown, Ray Charles, Otis Redding and the list goes on! Let the hospitality of the Music Hall of Fame set the scene to study "Blind Willy McTeel" and his early Struggles as an African-American musician.

Where:http://www.gamusichall.com
Who: Joseph Johnson, Curator of Music and Popular Culture
How: gmhf@mto.infi.net 1-912-750-8555 x110

Use videoconferencing to interview prospective teacher candidates.

Hartness International/Hartness Technologies near Greenville, South Carolina, is a leader in the manufacturing of packaging equipment for industry. They are the developers of "Video Response Systems" which is a wireless camera used to expand videoconferencing applications. Tour the manufacturing plant via videoconferencing.

Where:http://hartness.com
Who: Melissa Mangano
How: 1-864-297-4404 x278

Healesville Sanctuary is 65 kilometers (41 miles) from Melbourne, Australia. In the 1940's the Sanctuary hatched the first Platypus ever bred in captivity. Come join the Australian Outback via videoconferencing! Here students and teachers will be introduced to numerous native species including dingoes, kangaroos, and helmeted honeyeaters. Join the Australian outback by way of this technology!

Where: http://www.zoo.org.au/
Who:Alan Boddy, Senior Education Officer in Charge of Information Technology
How:aboddy@zoo.org.au

Health Museum of Cleveland situated minutes from downtown Cleveland, Ohio, is the first of its kind in the Western Hemisphere. Determined to offer students of all ages the very best in health education the museum's distance learning program uses videoconferencing to strengthen and enhance school based curricula in health, life sciences and applied math concepts. As an informal health science provider, the museum fosters engaged learning environments for both teachers and students.

Where:http://www.healthmuseum.org
Who:Roger Zender, Manager, IT and Distance Learning
How:zender@healthmuseum.org 1-216-231-5010

Independence National Historical Park is located in downtown Philadelphia, Pennsylvania. It is often referred to is "the birthplace of our nation." Park visitors can see the Liberty Bell and Independence Hall. Through the power of videoconferencing students can be transported to this National Park for lessons on the Constitution, Declaration of Independence and the Liberty Bell.

Where:http://www.nps.gov/inde
Who:Cindy Ansel, Partners in Distance Learning Program Manager
How:cansel@berwicksd.org 1-888-404-8860

Students take classes not offered at their school via videoconferencing. **Indianapolis Museum of Art** is located in Indianapolis, Indiana. Students can discover connections between art at the museum and a variety of subjects from mathematics to foreign languages, through an interactive videoconference. Customized programs other than the ones mentioned on the website are available dependent on staff availability. Ask for the newly created free, seven-minute "Learning Comes Alive" video that profiles the museum's videoconference programs.

Where: http://www.ima-art.org
Who: Wendy Wilkerson, Indianapolis Museum of Art
How: Wwilkerson@ima-art.org 1-317-923-1331 x218

Indianapolis Zoo in Indianapolis, Indiana, allows for a real wild connection via videoconferencing! The zoo offers individual classes or classes in a series. "Students from across Indiana to across the United States have connected to the zoo to learn about the smallest zoo residents, the leaf cutter ants, to the largest zoo residents, the African elephants." Students can even videoconference from right in front of the Atlantic Bottlenose dolphin pool.

Where: http://www.indyzoo.com
Who: Becky Jones, Indianapolis Zoo Distance Learning Educator
How: bjones@indyzoo.com 1-317-630-2069

J@zzschool at the Knitting Factory located in New York, New York, recognizes that music appreciation classes sometimes are no longer an option in schools. Through J@zzschool at the Knitting Factory, opportunities for students to learn about jazz from musicians themselves exist each week. Join distinguished jazz artists as they discuss the evolution of jazz or electronic music! Before and after the live videoconference, the artist histories can be explored by the website.

Where:http://www.jazzchool.com
Who: Mary-Noelle Dana
How:mano@knittingfactory.com 1-212-219-3006 x429

KCET Public Television located at 4404 Sunset Boulevard in Hollywood, California,

has a rich history of "bold and original public television programming." In the past the station has delivered exceptional videoconference programs to students, often focusing on careers such as "Careers in Culinary Arts" and "Careers in Science." Recently they have hosted authors to participate in videoconference author tours!

Where:http://www.kcet.org
Who:Mitch Aiken, Associate Director, Educational Enterprises
Howmaiken@kcet.org 1-323-953-5309

Lee Richardson Zoo is a favorite gathering spot in Garden City, Kansas. It is located about 1650 miles from either coast. The education department offers programs on a variety of "zoo-ey" topics. Students "tou'can" journey through the wilds of the zoo via a videoconference educational program. The zoo offers environmental and conservation programs with bi-weekly pre-determined topics. Staff development and other training workshops are available.

Where: http://www.garden-city.org/zoo/
Who:Kathy Sexson, Curator of Education/Deputy Director
How: city.zooeducation@gcnet.com 1-316-276-1250

Liberty Science Center where SCIENCE = FUN is located in Liberty State Park, Jersey City, New Jersey. The Center offers Electronic Field Trips as a link to their 250 plus hands-on exhibits and experiences. Some of the most beloved exhibits are exotic insects and reptiles, a video light microscope, real human lungs, and an 80-foot torsional wave tank depicting the Hudson River estuary environments.

Where: http://www.lsc.org/eft.html
Who: Victoria Torbic, Program Administrator
How: vtorbic@lsc.org 1-201-451-0006 x382

**With videoconferencing, students have greater opportunities to form
meaningful relationships with students who may be different from them.**

Library of Congress in Washington, DC is the Nation's Library, and the largest
library in the world. Staff Development programs help educators navigate, search,
and use its online multimedia collections of photographs, sound recordings, films,
maps, and documents. Presentations by curators provide a glimpse into the riches
held at this 200-yr-old institution.

Where: http://www.loc.gov/
Who: Judy Graves, Digital Project Coordinator
How: jgrav@loc.gov or 202/707-2562 or
http://memory.loc.gov/ammem/ndlpedu/educators/video/index.html

Los Angeles County Museum of Art is the largest art museum west of Chicago.
The museum in Los Angeles, California, houses more than 110,000 works of art. Six
buildings covering 636,000 square feet are used to show art from ancient times to
the present. The museum sometimes known as LACMA is in the early stages of
incorporating videoconferencing into its educational programs but usually sessions
focus on an aspect of the permanent collection or a special exhibition at the
Museum.

Where: http://www.lacma.org
Who: Diana Folsom, Art and Education Systems Manager
How: folsom@lacma.org 1-323-857-6000 x6594

**Discover Pacific Bell's Knowledge Network Explorer Videoconferencing
Directory!
Enter your information or find a video partner.**

Louisville Science Center, right across the street from the Louisville Slugger
Museum, in Louisville, Kentucky. The education department has several programs
available for videoconferencing. One successful program is "Meet the Experts"
that has students interact with scientists. Hands-on activities are included over
videoconferencing to keep students further engaged.

Where: http://www.lsclouienet.org
Who: Eve Polley, Distance Learning Coordinator
How: epolley@louky.org 1-502-561-6100 x6579

Louisville Zoo is just 15 minutes from downtown Louisville, Kentucky. It is the home to some of the largest and rarest animals on the planet. The Zoo partners with Male High School for their Zoo videoconference presentations that meet National Science Education Standards. The main focus is to use live animals covering a variety of topics from reptiles to tropical rainforests. The goal of the zoo is to "better the understandings between people and the "net."

Where: http://www.louisvillezoo.com
Who: Marcelle Gianelloni, Curator of Education
How: MGIANELLONI@louky.org 1-502-459-2181 x328

Mid-Atlantic Center for the Arts is located in Cape May, New Jersey, on a Victorian estate built in 1879. Through videoconferencing, students get an introduction to the Victorian lifestyle. Using different artifacts from various collections, museum educators' point out the differences and familarities between life today and yesteryear. Join the Mid-Atlantic Center for the Arts in a virtual adventure soon.

Where: http://www.capemaymac.org or http://special.capemayschools.com
Who: Ruth Brown, Coordinator of Education Technology
How: rbrown@special.capemayschools.com

Mote Marine Laboratory, a leader in marine science education is housed in Sarasota, Florida. The distance learning program, which is known as "SeaTrek" offers a variety of videoconference programs. Favorites include "Sharks: Devouring the Myths" where students examine facts about sharks and "Sea Turtles: Amazing Reptiles of the Sea" focusing on the conservation of sea turtles.

Where: http://www.mote.org or http://www.seatrek.org Who: Elizabeth Metz, Director of Distance Learning How: seatrek@seatrek.org 1-941-388-4441

Museum of Modern Art, New York (MoMA) is located in the Theater District of New York City. The museum houses one of the world's finest collections of modern masterpieces. MoMA educators can lead students in extensive conversations about notable works from the collections by way of a videoconference. These distance learning classes are adapted from programs offered at the museum such as "Looking with MoMa" and "You Call that Art?"

Where:http://www.momo.org
Who:April Kim, Teacher Information Center Coordinator
How:April_Kim@moma.org 1-212-708-9882

Learning is from a primary source in videoconferencing.

Museum of Television and Radio can be found in Beverly Hills, California. Videoconferencing with the Museum allows teachers and students access to the archive of over 100,000 television and radio programs. These act as a window to the past and present, illuminating significant events in our nation's history and culture. Various programs are available such as "The Civil Rights Movement and Television" and "Planet Earth." The latest program is titled "What Scares You - A Look at Hitchcock!"

Where: http://www.mtr.org
Who: Cid Pearlman, Videoconference Coordinator
How: CPearlman@mtr.org 1-310-786-1099

Museum of Tolerance in Los Angeles, California, is part of the Simon Wiesenthal Center. Today, it is an international center for "Holocaust remembrance, the defense of human rights and the Jewish people." The Museum of Tolerance offers speakers that include Holocaust survivors and presentations by former neo-nazi skinheads. These can be done over videoconference along with other museum programs. Often programs focus on the dynamics of racism and prejudice in the United States.

Where: http://www.wiesenthal.com

Who: Janet Garfinkle, Educational Outreach
How: jgarfinkle@wiesenthal.net 1-314-553-9036

NASA Glenn Research Center at Lewis Field in Cleveland, Ohio, develops communications technologies for NASA's space missions. The facility offers students and teachers many workshops using videoconferencing technology. Videoconferences are available in the following NASA missions: Space Science, Earth Science, and Development of Space Transportation. Program descriptions and correlations to the National Standards can be found on the Research Center's website.

Where: http://www.grc.nasa.gov/WWW/k-12/CoE/Presentation_Descriptions111.html
Who:Ruth A. Petersen
How: Ruth.A.Petersen@grc.nasa.gov 1-216-433-9714

NASA Johnson Space Center, home to astronaut training and the International Space Station Program, is located outside Houston, Texas. Visit them via a live interactive videoconference. Suggested topics to consider meeting various standards include microgravity, aerospace careers, space tools and food, astronomy, and of course the virtual visit through the International Space Station. "Each event may have at least four schools participating via a bridge."

Where: http://learningoutpost.jsc.nasa.gov
Who: Sarah Enticknap, Event Coordinator
How: 1-281-244-7325

National Museum of American Art is the home of the largest collection of American art in the world. It is located in Washington D.C., as part of the Smithsonian Institute. The National Museum of American Art has just started to establish videoconferencing content for schools. One project involves a staff development videoconference how to integrate art across the curriculum!

Where: http://nmaa-ryder.si.edu/
Who: Woody Dowling

How: sdowling@nmaa.si.edu 1-202-633-8062

National Museums and Galleries located on Merseyside, Liverpool, England, is a large "multidisciplinary organization covering art, history and science." Remote studies of museum collections are available to students in the United States via videoconferencing! Powerful video-microscopes in the Centre can be connected to the videoconferencing system to help engage students in science studies.

Where: http://www.nmgm.org.uk
Who: Phil Phillips
How: phil@nmgm-it2.demon.co.uk +44-151-478-4213

National Museum of Science and Industry in London, England, near Hyde Park welcomes millions of visitors each year. Become virtual student guests by scheduling a videoconference with the Museum! "In Trans-Atlantic videoconferences, students can see 17th century amputation saws and Victorian irons, meet the inventors of the flush toilet and frozen peas, or talk with curators about telecommunications."

Where: http://www.nmsi.ac.uk
Who: Sarah Leonard, Education Program Manager
How: s.leonard@nmsi.ac.uk +44-1719-388-166

Videoconferencing, new to most teachers, librarians and students, allows people at different locations to see, hear and interact with each other.

National Museum of Natural History located on the National Mall in Washington D.C., is one of the 16 museums, galleries and a national zoo that make up the Smithsonian Institute. The National Museum of Natural History houses an innovative hands-on learning facility. Videoconference programs are not regularly scheduled but big changes are afoot! The museum plans to coordinate and conduct an assortment of videoconference fieldtrips!

Where: http://www.mnh.si.edu/

Who: Linda Stevens
How: stevens.linda@nmnh.si.edu 1-202-633-9497

New York Hall of Science in Corona, New York will delight students using the latest videoconferencing technology. The "Virtual Visit" will link your class with Explainers at the Hall, providing a rich, interactive science learning experience. Explore selected exhibits, demonstrations and activities all illustrating science concepts. Follow-up activities are provided along with materials and instructions.

Where: http://www.nyhallsci.org
Who: Daniel Klinger, Science Instructor
How: dklinger@nyhallsci.org 1-718-699-0005 x332

New York Institute of Technology Culinary Arts Center situated in the Central Islip, New York, area has trained many students in the area of culinary and pastry arts. Now the Culinary Arts Center reaches out to classrooms around the country as a videoconference content provider! One well-received virtual field trip is called "The Chicken or the Egg" featuring chicken dissection, comparative anatomy and cultural recipes.

Where:http://iris.nyit.edu/culinary
Who:Susan Sykes Hendee, Department Chair Culinary Arts
How:shendee@nyit.edu 1-631-348-3290

North Carolina Museum of Natural Sciences has students visiting their museum in Raleigh, North Carolina, without having to sign field trip forms. By Videoconferencing students are able to stay in the classroom and interact with the instructor and museum exhibits. When possible, "a class visiting the museum will join in the videoconference and participate in the scheduled program." A series of natural history videoconference lessons are available.

Where: www.naturalsciences.org
Who:Liz Baird, Coordinator of Distance Learning
How:Liz.Baird@ncmail.net 1-919-733-7450 x621

Oakland Museum of California is the only museum "devoted to the art, history and natural sciences of California." It is located in Oakland, California, near Lake Merritt. The education department has many online curriculum units such as GOLD RUSH but will supplement these with videoconferencing programs.

Where: http://www.museumca.org
Who: Donna Leary, Education Department
How: 1-510-238-3819

Students perceive videoconference guests as important.
Ohio Historical Society located in Columbus, Ohio, offers a plethora of distance learning programs. Students are "transported through time to historic venues ranging from river boats to Civil War parlors to prehistoric mounds to safehouses on the Underground Railroad." Often video streaming, theatrical sets and costumes are among the techniques used to make history come alive for students. Note: Reserved first for Ohio students.

Where: http://www.ohiohistory.org/resource/teachers/dlearning/index.html
Who: David Gillespie, Distance Learning Coordinator
How: dgillespie@ohiohistory.org 1-614-298-2961

Ocean Institute of Dana Point, California, helps kids discover the ever-shifting marine environment. Videoconferencing enables students to enhance their education with a number of programs. "Safari into the Intertidal Zone" has students explore the Dana Point Marine Life Refuge while the quot;Mysterious Whale" explores the relationship between whales and humans. "Careers in Marine Science" explores the tools and techniques used by marine biologists while working in the field as well as their educational background. Programs are available at any grade level.

Where: http://www.ocean-institute.org
Who: Jennifer Long, Director of Educational Technology
How: jlong@ocean-institute.org 1-949-496-2274 x313

Philadelphia Museum of Art housed in Philadelphia, Pennsylvania, is one of the

great art institutions of the world. It has students and teachers look at new ways to explore the world through videoconferencing. "Art Line", the museum's distance learning initiative, will take students and teachers on a virtual art collection tour. Participants interact with live museum educators.

Where: http://www.philamuseum.org/education/distance.shtml
Who: Candace Le Claire, Distance Learning Coordinator
How: cleclaire@philamuseum.org 1-215-684-7584

Presque Isle State Park, a sandy peninsula that reaches into Lake Erie is located in Erie, Pennsylvania. Presque Isle is a National Natural Landmark with diverse plants and animals that attracts many visitors. The first users of the peninsula were the Eriez Tribe, giving Lake Erie its name. Students can learn about the historical, natural and environmental issues of Presque Isle via a videoconference! Maps are available to teachers as well as activities during the videoconference.

Where:http://www.presqueisle.org
Who:Randy Neyer, Environmental Education Specialist
How:ranature@aol.com 1-814-833-0351

Multipoint videoconferencing allows more than two sites to connect.

Queens Botanical Garden, "the place where people, plants and cultures meet" is located in Flushing, New York. The Garden has a wide array of enjoyable educational programming available to classrooms around the country via a videoconference. In the "Bees and Flowers" videoconference program, the instructor will dress up in costume as a beekeeper to deliver the lesson. "Growing Together" and "George Washington Carver" are two other distance learning topics available.

Where: http://www.queensbotanical.org
Who:Betty Scott, Distance Learning Coordinator
How:1-718-886-3800 x230

Railroad Museum of Pennsylvania Strasburg, Pennsylvania, is on PA Route 741 about a mile east of the "only traffic signal in town!" The Museum is dedicated to preserving railroad history. One way to pass this history along is via videoconferencing to students. A number of videoconference programs are available such as "150 Years of Riding the Rails" and "Let's Run a Railroad."

Where:http://rrmuseum.org
Who:Cindy Ansel, Partners in Distance Learning Program Manager
How:cansel@berwicksd.org 1-888-404-8860

When the videoconference is over, evaluate it to help make future telelearning more effective.

Were the intended outcomes achieved?

San Diego Zoo is located on Zoo Drive in Balboa Park, north of downtown San Diego. Its collection of animals, as well as its plant collection of over 6,500 species, is acknowledged as one of the finest in the world. Visit the zoo via a live interactive videoconference session! Programs for all ages and grades are available.

Where: http://www.sandiegozoo.org
Who:Dennis Corbran, Distance Learning Coordinator
How: dcorbran@sandiegozoo.org 1-619 231-1515 x 4185

San Juan Institute is a non-profit scientific institute located in San Juan Capistrano, California (33o29'56"Nx117o39'40"W). It is dedicated to research in Planetary Science, Earth Science and Astronomy "with emphasis on geology, atmospheric, and space physics investigations. SJI offers demonstrations over videoconferencing related to planetary science, planetary scientists and general demonstrations.

Where: http://www.sji.org
Who: Pam Byrd
How: educator@sji.org 1-949-240-2010

Southern Alleghenies Museum of Art operates four facilities in southwestern Pennsylvania. Originally founded to bring museum services to rural communities, they partner with St. Francis College in Loretto, Pennsylvania, to offer videoconference programs to students nationwide. The programs allow "curators, artists, and educators to meet with students to explore art, history, aesthetics and culture through the Museum of Art's collections and exhibitions. Each videoconference includes pre and post activities.

Where:http://www.sama-sfc.org
Who:Barbara Hollander
How:1-814-946-0436

State Museum of Pennsylvania in Harrisburg, Pennsylvania, offers many interactive videoconference projects. "Pickett's Charge," a towering painting of one of the climactic moments of the Civil War, is the focal point of one videoconference class. In "Every Object Tells a Story" students learn about their past through objects. The videoconference course offerings are endless at the State Museum!
Where:http://www.statemuseumpa/org/nvisiondlp.html
Who:Cindy Ansel, Partners in Distance Learning
How:cansel@berwicksd.org 1-888-404-8860

Tennessee Aquarium in Chattanooga, Tennessee, houses the world's largest freshwater aquarium. Let the education department bring some of the wonders of the natural world to your classroom via a videoconference. Currently featured are several of the creatures that reside at the aquarium such as the Giant Marine Toad, the bright red Tomato Frog, or the Alligator Snapping Turtle.

Where: http://www.tnaqua.org
Who:Or Cingilli, Education Technology Coordinator
How: or.cingilli@tnaqua.org 1-423-785-4051

   Make sure to check content provider charges before a videoconference!

THE WILDS! of Cumberland, Ohio, is the largest facility of its kind in North

America. It spans nearly 10,000 acres of reclaimed, surface-mined land. Different species roam freely throughout different areas of the park. The Wilds offers interactive videoconference programs such as "Wetland Identification," an interactive session exploring wetlands and "Surface Mining and Reclamation" exploring mining technology with reclamation methods.

Where: http://www.thewilds.org
Who: Sherry Hubbard
How: shubbard@thewilds.org 1-740-638-2220

Toledo Zoo, home of "Senior Safari Days" and " Arctic Encounter" is located in Toledo, Ohio, in the Northwest corner of the state. It is just the right size for an afternoon visit or videoconference! Distance Learning programs take place at the actual exhibits found throughout the zoo. Units rich in content include African grasslands, rainforests, animal classification and food chains. Join the Toledo Zoo for an EdZOOcation videoconference edventure - find out how the elephant got his trunk!

Where: http://www.toledozoo.org
Who:Mitch Magdich
How: mitch.edu@toledozoo.org 1-419-389-6403 x2048

United States House of Representatives in Washington, D.C., began with its first Congress on March 4, 1789. Not until recently did Congress have the ability to use email and videoconferencing to communicate with constituents. Teachers can videoconference to the House of Representatives by contacting their Representatives FIRST then the Videoconference Director for the House of Representatives. Schools incur all costs of a videoconference session.

Where: http://clerkweb.house.gov/mbrcmtee/mbrcmtee.htm
Who:Keith Hastedt, House of Representatives Videoconference Director
How: keith.hastedt@mailhouse.gov 1-202-226-6200

United States Senate in Washington, D.C., houses two Senators from each state. It is located at the "east end of the National Mall between Constitution and

Independence Avenues. Through the power of videoconferencing it is possible to visit your Senators for a unique "Capitol experience." Arrangements must be made ahead of time by contacting the office of the Senator FIRST; then the videoconference center. The school must incur costs of the videoconference.

Where: http://www.senate.gov
Who: Torgunn Eckroad, Videoconference Director
How: torgunn_eckroad@saa.senate.gov 1-202-224-4977

University of Georgia Marine Extension Service in Savannah, Georgia, makes the ocean come alive for students. Over ¾ of the earth is blanketed by water. Explore the species that inhabit the water through the power of videoconference! "Feeding Frenzy" and "Head Games" are among some of the more popular programs along with "Restless Reptiles" and "Thar She Blows! It's the Right Whale!"

Where:http://www.marsci.uga.edu/EXT/GSAMS.html
Who: Bob Williams, Distance Learning Coordinator, Education Specialist
How: bobwms@uga.edu 1-912-598-2496

Invite the "world" into your school or library with videoconferencing.

Wetlands Institute of Stone Harbor, New Jersey, overlooks 6,000 acres of Atlantic coastal wetlands. The Institute is dedicated to "furthering coastal environmental knowledge." Diamondback terrapin conservation, beach biology and avian ecology are all part of the Institute's research projects. Immerse students into wetland life by a field trip via videoconferencing!

Where: http://www.wetlandsinstitute.org
Who: Tedor Whitman, Director of Education
How: 1-609-368-1211

Women's Museum: An Institute for the Future just opened the doors September 28th, 2000 in Dallas, Texas. The Museum's mission is to enrich and "inspire all visitors by celebrating women's history." Already the education department has planned for videoconferencing programs including a series of

multicultural exchanges between girls and women in the United States and Jordan.

Where:
Who: Robin Lou Windham, Institute Education Director
How: ed.director@thewomensmuseum.org 1-214-915-0877

WVIA TV/FM serves 22 counties surrounding Pittston, Pennsylvania. "How to Produce a Newscast" is just one of the twelve programs the station offers over videoconferencing. Experts often discuss the similarities and differences in reporting via print media and reporting on television or radio. Videoconferencing programs are "designed to improve the quality of education beyond the WVIA viewing area."

Where:http://www.wvia.org/other/learning.html
Who: Calesta Schmitt, Education Services Coordinator
How: Calesta_Schmitt@wvia.pbs.org 1-570-602-1182

Zoo Atlanta in Atlanta, Georgia, makes permission slips for student field trips easy. There are none! Instead students can take a trip to the famous Zoo Atlanta through their school's videoconferencing systems. Zoo Atlanta provides opportunities for out-of-state students to participate in zoo videoconferences. Programs are designed to be highly interactive with subject offerings like "Rattlesnake Round-Up," "Giant Pandas" and "Animal Encounter."

Where: http://www.zooatlanta.org
Who: Kim Morris-Zarneke, Program Coordinator for Distance Learning
How: distancelearn@zooatlanta.org 1-404-624-5948

Need more videoconferencing information? You can download this document at
http://www.kn.pacbell.com/wired/vidconf/adventures.pdf
(note:Internet Explore no longer come with the Adobe Plug-in installed.
You can get the plug-in from the Adobe website or contact us and we can e-mail it to

you.)

Videoconference and other workshops are available for Pacific Bell customers in

California. Please contact the Pacific Bell Education Advocate in your area for more information.
Jackie Siminitus, California Libraries 1-415-542-5352 js8295@sbc.com
Katie Beedon, California South Counties 1-619-237-2042 kb5746@sbc.com
Beth Bustamante, Greater Los Angeles Area 1-213-975-2217 bb1828@sbc.com
Linda Uhrenholt, Greater San Francisco Bay Area 1-925-824-9064 lu2829@sbc.com

First posted 1998.
Last modified Wednesday
October 30, 2002
http://www.kn.pacbell.com/wire
d/vidconf/adventures.html
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APPENDIX D

QUESTIONNAIRE FOR DISTANCE LEARNING SURVEY

SURVEY
Please circle the grade level(s) at which you teacher: K-5   6-8   9-12

Please respond to the following statements by circling the response that most closely matches your experience and/or opinion.

The responses are on a scale from 1-5. The values are as follows:

5--Essential, always, nearly always – (I do this or agree with this 81-100% of the time)
4--Very important, very often –(I do this or agree with this 61-80% of the time)
3--Important, sometimes –(I do this or agree with this 31-60% of the time)
2--Unimportant, rarely –(I do this or agree with this 1 – 30% of the time)
1--Never ! (I do this or agree with this   0% of the time)

1.   Distance education/videoconferencing is an outstanding technology resource
        for teaching and learning that is available to my students in my school.

                                                                    1   2 3 4 5

2.   Distance education/videoconferencing is a technology tool that I have utilized to
        enhance student learning, at least, one time during the past year.

                                                                    1   2   3 4 5

3.   The availability of a faculty/staff member who functions as a facilitator for
        teachers incorporating distance education experiences into their classroom
        practice promotes greater use of this technology.

                                                                    1   2   3   4   5

4.   A better understanding of distance education/videoconferencing, through a staff
        development (in-service) initiative in this area, would promote greater use of this
        technology.

                                                                    1   2   3   4   5

5.   Distance education/videoconferencing enhances student achievement by
        providing outstanding, interactive, and/or cultural educational experiences
        without having to leave the school building.

                                                                    1 2   3   4   5

        Comments:

APPENDIX E

LETTERS PERTAINING TO DISTANCE LEARNING SURVEY

November 30, 2002

Dr. John Doe, Superintendent of Schools
Memorial School
420 Hudson Avenue
Pitman, New Jersey 08071

Dear Dr. Doe,

As part of the requirements for the Master of Arts Degree at Rowan University, I am
conducting research on the topic of distance education. In order to complete this
research, I am conducting a survey for which I have constructed a questionnaire. My
goal in this survey is to attempt to determine if teachers in the district have taken
advantage of the outstanding learning experiences available through the use of distance
learning technology. I am also attempting to discover, the factors that contribute to the
successful use of this technology and those that present barriers.

I am requesting permission to distribute copies of the enclosed questionnaire to the
teaching staff members of the Pitman High School District, Pitman Middle School and
Memorial School. The questionnaires will be completed anonymously, however, I am
requesting general grade level identification. I have also enclosed a copy of the letter that
I will send to the principal of each school.

At this time, my target date for distribution is Monday, January 13, 2003, with the
surveys being returned to me at the high school by Friday, January 17, 2003.

Thank you for your consideration of this request.

Sincerely,

Marsha K. Hahn

November 29, 2002

Mr. John Doe, Principal
Pitman High School
225 Linden Avenue
Pitman, NJ 08071

Dear Mr. Doe,

As part of the requirements for the Master of Arts Degree at Rowan University, I am conducting research on the topic of distance education. In order to complete this research, I am conducting a survey for which I have constructed a questionnaire. My goal in this survey is to attempt to determine if teachers in the district have taken advantage of the outstanding learning experiences available through the use of distance learning technology. I am also attempting to discover, the factors that contribute to the successful use of this technology and those that present barriers

Permission to conduct this survey with all teaching staff members of the Pitman High School, Pitman Middle School and Memorial School has been granted by Dr. Campbell. At this time, my target date for distribution is Monday, January 13, 2003, with the surveys being returned to me at the high school by Friday, January 17, 2003.

A copy of the survey is enclosed. If you would like a copy of the results of my research project, please complete the form at the bottom of this page and return it to me at the high school.

Thank you in advance for your cooperation with this project.

Sincerely,

Marsha Hahn

Please send a copy of your research project on distance education to:

_____

at_____School.

January 21, 2003

Dear Colleague,

As part of the requirements for the Master of Arts degree at Rowan University, I am
conducting a research project on the topic of distance education. I would greatly
appreciate your professional insight on this topic. All responses will remain anonymous.

Please take a few minutes of your time to complete the enclosed five (5)- question
survey, and return it to me by this Friday, January 24, 2003, in the enclosed envelope.

If you would like a copy of the survey results or the research, please send me a note
separately in order to maintain your anonymity.
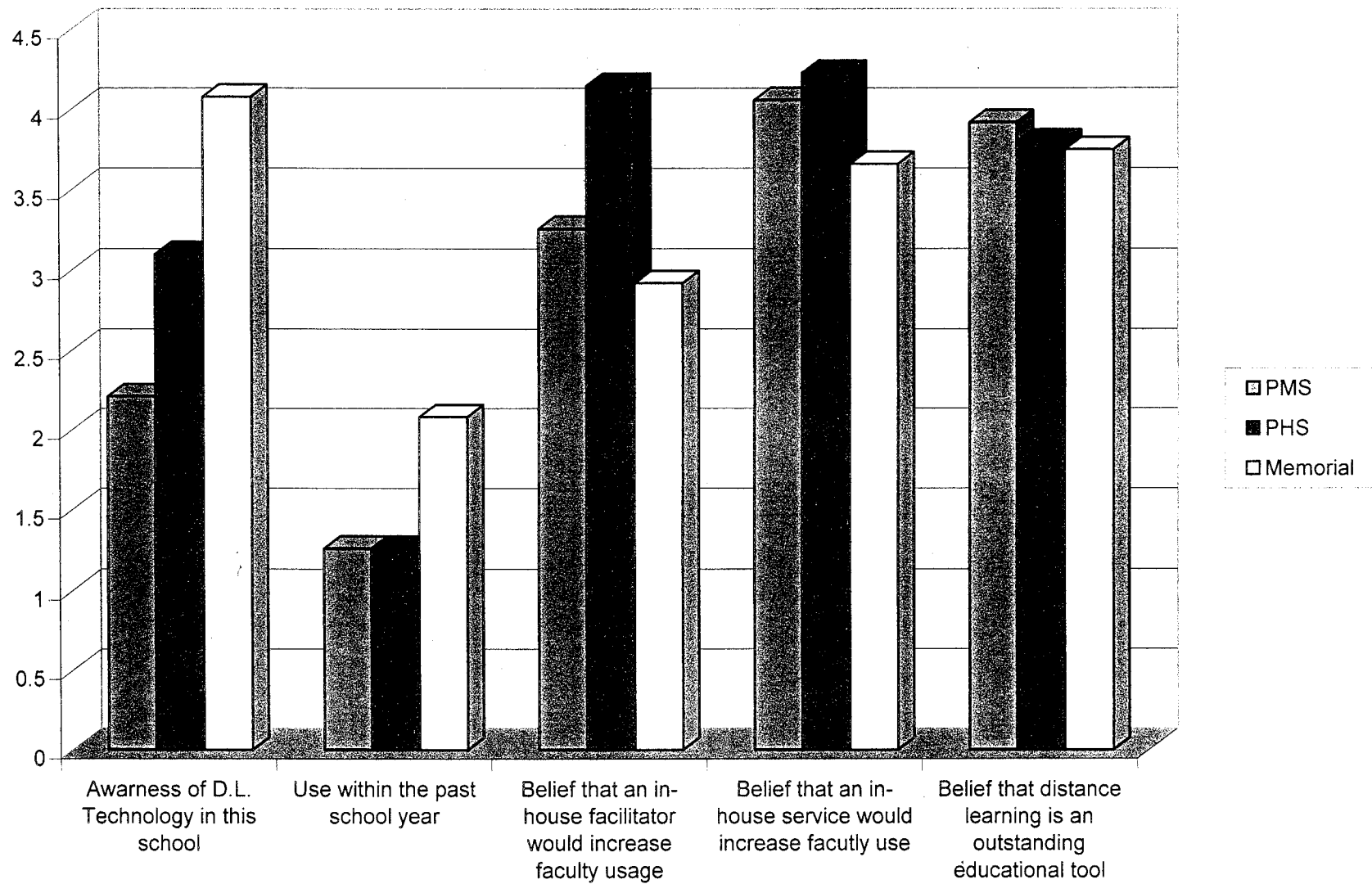Thank you in advance for your cooperation with this project.

Sincerely,

Marsha Hahn,
Pitman High School Educational Media Specialist

APPENDIX F

LETTER TO FACULTY MEMBERS SELECTED TO

PARTICIPATE IN PILOT SURVEY

January 6, 2003

Dear Colleague,

As part of the requirements for the Master of Arts degree at Rowan University, I am conducting a research project on the topic of distance education. I would greatly appreciate your professional insight on this topic, as well as your input as a department chairperson or member of the English Department.

Please take a few minutes of your time to complete the enclosed five (5)- question survey, and return it to me by this Thursday, January 9, 2003, in the enclosed envelope.

Please feel free to make comments, as well as to critique the structure, content or any other element of this questionnaire.

If you would like a copy of the survey results or the research, please send me a note separately in order to maintain your anonymity.

Thank you in advance for your cooperation with this project.

Sincerely,

Marsha Hahn,
Pitman High School Educational Media Specialist

APPENDIX G

GRAPH SHOWING COMPARISON OF THE MEAN RESPONSE TO

EACH QUESTION FOR EACH SCHOOL

SURVEY RESULTS - Comparison of the mean response for each question for the three schools surveyed

Appendix G

Legend:
- PMS
- PHS
- Memorial

Categories:
- Awarness of D.L. Technology in this school
- Use within the past school year
- Belief that an in-house facilitator would increase faculty usage
- Belief that an in-house service would increase facutly use
- Belief that distance learning is an outstanding educational tool

APPENDIX H

TABLES SHOWING RESPONSES TO EACH QUESTION FOR

EACH SCHOOL SURVEYED

TABLE ONE

SURVEY RESULTS FOR PITMAN HIGH SCHOOL
(Results based on a scale of 1-5 with 1 being the lowest and 5 the highest)

#Persons Responding	Awareness of D. L Technology in this school	Use within the past school year	Belief that an in-house facilitator would increase faculty usage	Belief that an in-service initiative would increase faculty use	Belief that distance learning is an outstanding educational tool
1	1	1	4	4	3
2	3	1	3	5	3
3	4	1	4	5	5
4	2	1	4	5	2
5	3	1	4	5	5
6	2	1	1	3	1
7	2	1	3	3	2
8	3	2	3	5	5
9	3	1	1	3	3
10	4	5	5	4	4
11	4	1	5	5	5
12	2	1	5	3	3
13	4	1	5	3	4
14	3	1	5	5	5
15	5	1	5	5	5
16	3	1	5	5	3
17	3	1	5	5	5
18	3	1	4	3	4
19	3	1	4	4	4
20	3	3	5	5	5
21	5	1	5	4	4
22	5	1	5	5	5
23	3	1	5	5	5
24	3	1	5	3	3
25	3	1	3	3	3
26	3	1	5	5	3
Totals	82	33	108	110	99
Mean	3.1	1.26	4.15	4.23	3.80

TABLE TWO

SURVEY RESULTS FOR PITMAN MIDDLE SCHOOL
(Results based on a scale of 1-5 with
1 being the lowest and 5 the highest)

#Persons Responding	Awareness of D. L Technology in this school	Use within the past school year	Belief that an in-house facilitator would increase faculty usage	Belief that an in-service initiative would increase faculty use	Belief that distance learning is an outstanding educational tool
1	2	1	1	5	4
2	1	1	3	2	3
3	2	1	3	4	3
4	*	1	5	5	**
5	2	1	1	3	5
6	2	1	4	4	2
7	1	1	3	3	4
8	5	1	5	5	5
9	2	1	5	5	5
10	2	1	1	5	3
11	2	1	3	3	3
12	2	1	5	5	4
13	1	1	1	4	4
14	4	1	5	5	5
15	5	5	4	3	5
Totals	31	19	49	61	55
Mean	2.21	1.26	3.26	4.06	3.92

*Respondent not aware of this technology available in his/her school.
** If it doesn't exist respondent could not evaluate!

TABLE THREE

SURVEY RESULTS FOR MEMORIAL SCHOOL
(Results based on a scale of 1-5 with
1 being the lowest and 5 the highest)

#Persons Responding	Awareness of D. L Technology in this school	Use within the past school year	Belief that an in-house facilitator would increase faculty usage	Belief that an in-service initiative would increase faculty use	Belief that distance learning is an outstanding educational tool
1	3	1	4	2	3
2	2	1	3	2	3
3	3	1	4	4	3
4	4	1	5	5	4
5	2	1	3	2	2
6	3	5	5	3	4
7	4	3	5	5	4
8	3	1	5	3	3
9	5	5	5	4	5
10	4	4	1	5	5
11	4	1	5	4	5
12	2	1	2	5	4
Totals	49	25	47	44	45
Mean	4.08	2.08	3.92	3.66	3.75

APPENDIX I

INDIVIDUAL PITMAN HIGH SCHOOL TEACHER RESPONSES

TO QUESTION ONE

QUESTION ONE
Awareness of Distance Learning Technology Among Teachers Resp onding
to Survey in Pitman High School
MEAN RESPONSE FOR QUESTION ONE 2.21

Scale 1-5

Teacher responses

Awareness of D.L Technology in this school
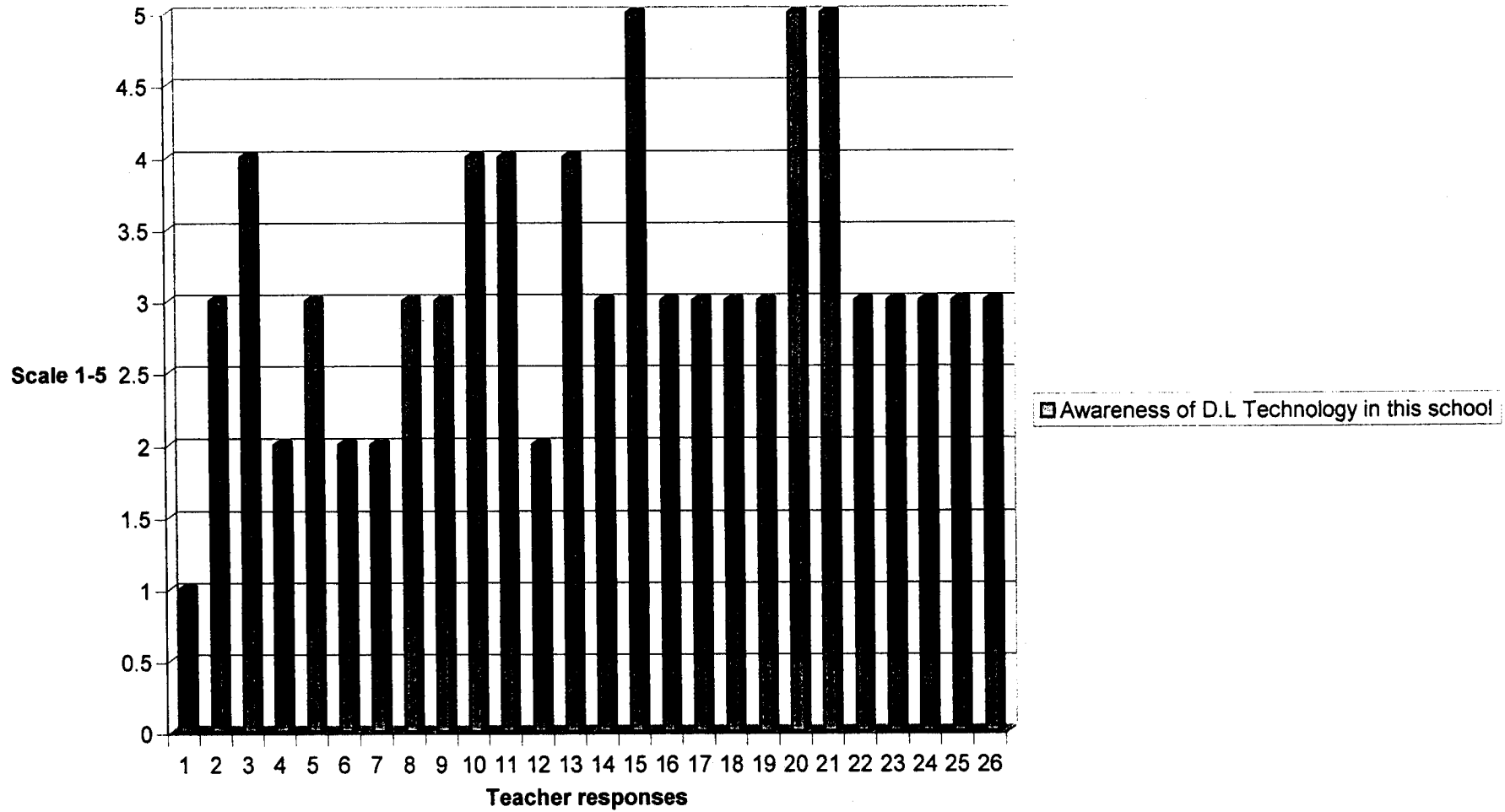
APPENDIX J

INDIVIDUAL PITMAN HIGH SCHOOL TEACHER RESPONSES

TO QUESTION TWO

QUESTION TWO
Use of Distance Learning Technology during the past school year by Pitman High School   Appendix J
teachers responding to survey
MEAN RESPONSE FOR QUESTION TWO 1.26

Scale 1-5

Use within the past school year
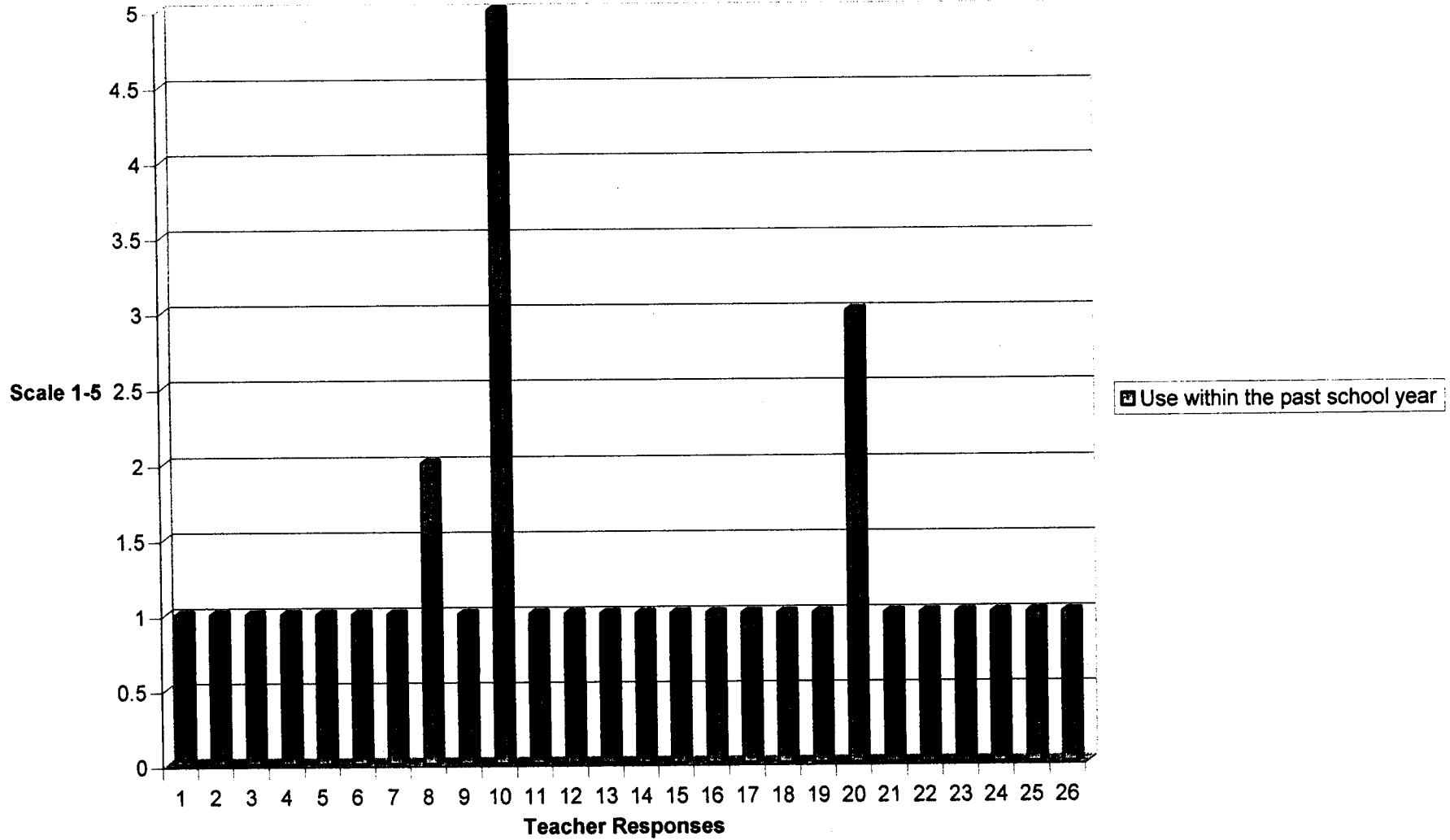
Teacher Responses

APPENDIX K

INDIVIDUAL PITMAN HIGH SCHOOL TEACHER RESPONSES

TO QUESTION THREE

QUESTION THREE
Response by Pitman High School teachers to survey
Belief that an in-house facilitator would increase faculty usage
MEAN RESPONSE TO QUESTION THREE 4.15

Belief that an in-house facilitator would increase faculty usage

Teacher Responses

Scale 1-5
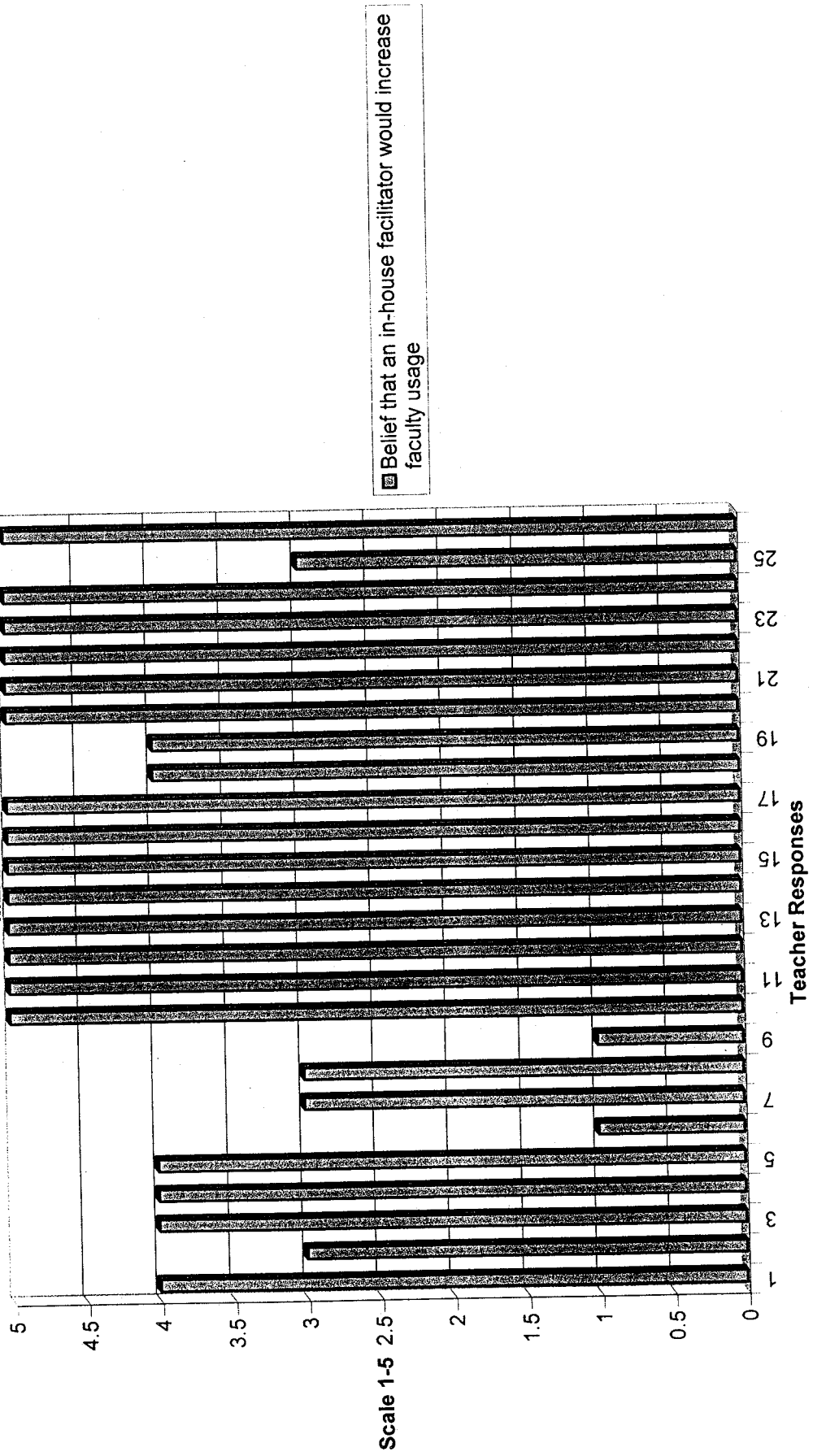
APPENDIX L

INDIVIDUAL PITMAN HIGH SCHOOL TEACHER RESPONSES

TO QUESTION FOUR

QUESTION FOUR
Response by Pitman High School teachers to survey
Belief that an in-service initiative would increase faculty use
MEAN RESPONSE TO QUESTION FOUR 4.23

Scale 1-5

Teacher Responses

Belief that an in-service initiative would increase faculty use
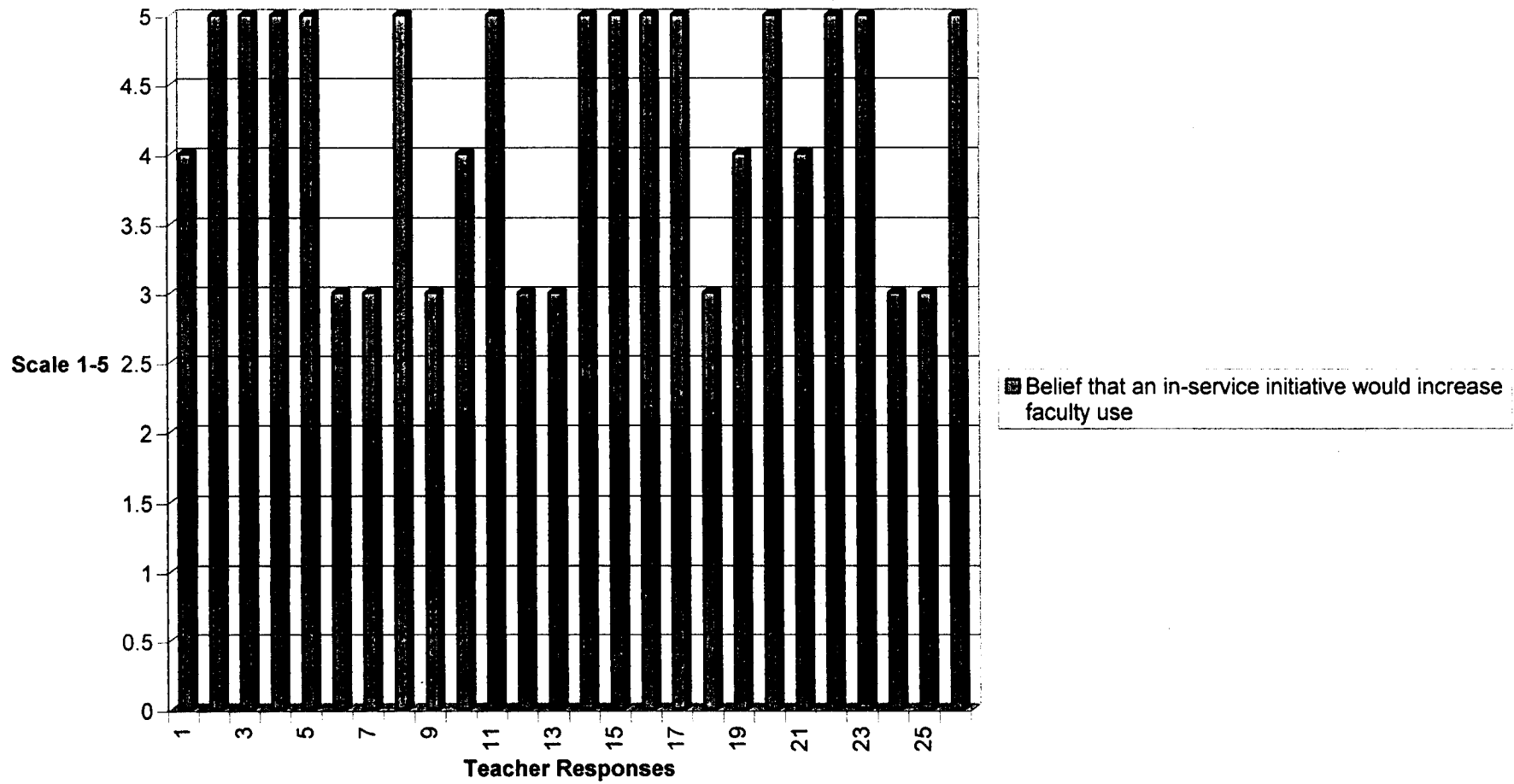
APPENDIX M

INDIVIDUAL PITMAN HIGH SCHOOL TEACHER RESPONSES

TO QUESTION FIVE

QUESTION FIVE
Belief by Pitman High School teachers that distance learning is an outstanding educational tool
MEAN RESPONSE TO QUESTION FIVE 3.8

Scale 1-5

⊞ Belief that distance learning is an outstanding educational tool

Teacher Responses
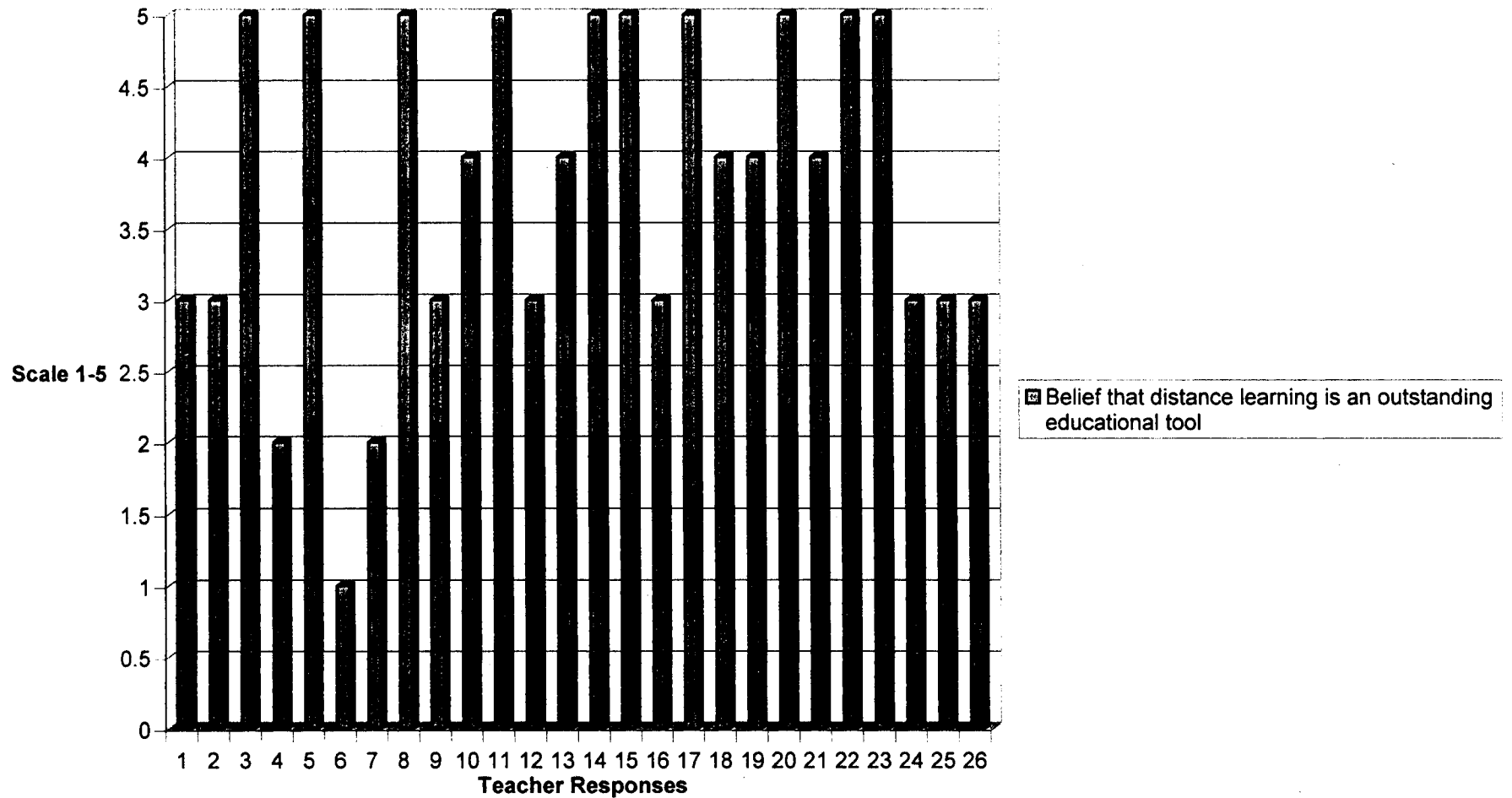
APPENDIX N

PACKET OF MATERIALS PREPARED FOR

DISTANCE LEARNING WORKSHOP

GLOUCESTER COUNTY IN-SERVICE DAY

NOVEMBER 6, 2002

Video Conferencing in a Not-So-Perfect Environment
Gloucester County In-Service
Pitman High School
November 6, 2002
7:30AM – 1:15PM

Sara Bailey and Marsha Hahn, Presenters

7:30 – 8:15 AM – Registration/ Refreshments

8:15 – 9:00 AM – Introduction / Overview
       1. Visit with Memorial School
       2. Review Handout
       3. Indianapolis Museum of Art Video
       4. Individual introductions

9:00-9:30 – Power Point – Marsha Hahn

9:30- 10:15 – Electronic Field Trip to Liberty Science Center
       "Geometry in Nature"

       Review of "Field Trip"

10:15 – 10:45 -- Experiences of a seasoned electronic traveler –
       Sara Bailey

10:45 – 11:30 – Electronic field trip to the Indianapolis Museum
       of Art - Overview of what they offer and
       electronic field trips in general.

       Review of "Field Trip"

11:30 – 12:30 -- Time on Computers for Videoconferencing-
       Electronic Field Trip Sites.

12:30 -- 1:05 -- Review and questions

1:05 -- 1:15 -- Evaluation

Gloucester County In-Service Day November 6, 2002

Presenters:

Sara Bailey, Educational Media Specialist-Memorial School –Pitman NJ

Marsha Hahn, Educational Media Specialist

Pitman High School

VIDEOCONFERENCING:

In a not so perfect environment

VIDEOCONFERENCING:

In a not so perfect environment

Videoconferencing

Distance Education

Distance Learning

Distance Learning
Distance Education

What is it?
- An integrated system of voice, video, and data capable of delivering quality curriculum and instruction.
- A way to offer access to people, places and ideas regardless of geographic constraints
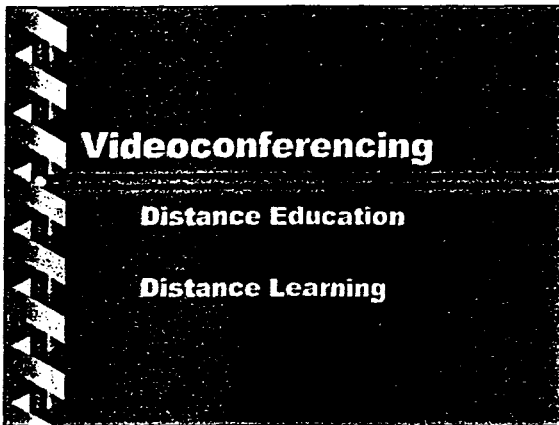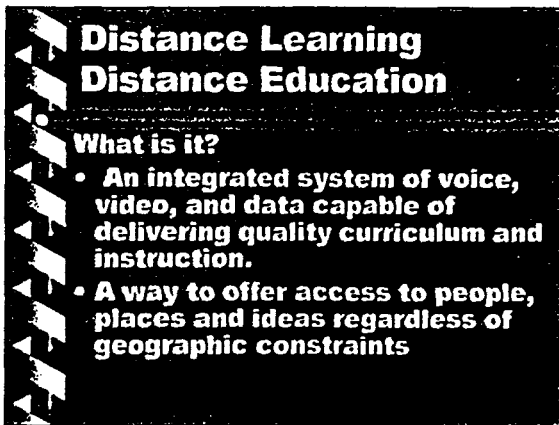
What is it?

- Planned learning that normally occurs in a different place from teaching and as a result requires special techniques of course design and instruction, as well as special organizational arrangements.

What Can it Provide?

- Opportunities for cross-cultural interaction
- Links to connect schools to each other and the outside world
- Opportunities for electronic field trips, professional development and broad information access

Why?

- Unique learning opportunities
- NJCCCS – T & E- Students expected to use technology tools.
- ISLLC Standard #2
  ..Fosters the role of technology in promoting student learning and professional growth. Is a tool for teaching and learning.

Types of Distance Learning

• **Asynchronous distance learning:** Communication in which interaction between parties does not take place simultaneously.

"Any place, any path, any pace"

Types of Distance Learning

• **Synchronous DL:**

Communication in which the interaction between participants is simultaneous. "Real time" videoconferencing

How Does it Happen?

• IP Number   (Internet Protocol Number   i e 165.113.45. 27)

• ISDN lines   Integrated Services Digital Network (Carries voice, video & data) Think phone lines!

Lesson Planning New Strategies

- Technology management

- Student Feedback

- Student participation

- Active learning

Additional Considerations

- Student age, background, interests
- Level of familiarity with instructional method & technology
- How does this experience connect to other learning?

Lesson Plan Matrix

- Learner outcomes
- Methods & Activities
- Materials
- Time
- Equipment
- Notes/handouts
- Student engagement/dialog
- Reduction of distractions

4

Pacific Bell Knowledge Network

http://www.kn.pacbell.com/
wired/videconf/index.html

Copyright Issues

- Intellectual property rights

When in doubt, ask permission
(Letter in packet)

Salvati- Eight Essentials

- Principal- Clear vision & commitment
- A school DL champion
- District support – financial, technical & programmatic
- School DL committee to encourage advancement

8 Essentials – Continued

- Well-maintained facility & equipment
- DL "Rules of Order"
- Professional development – beyond the district – Think Big!!

Skills/Etiquette

- Learn your DL system
- Maintain eye contact
- Show interest in all participants
- Dress appropriately
- Move & gesture slowly/smoothly

Skills & Etiquette – 2

- Maintain appropriate on-camera positioning
- Be enthusiastic about the technology & the subject matter
- Speak in a strong, clear voice
- Use audio-visual aids

Student Assessment

- Formative

- Summative

Program Evaluation

- AEIOU Evaluation
- Accountability
- Effectiveness
- Impact
- Organizational context
- Unanticipated Consequences

Conclusion

- Research clearly shows that distance education is an effective method for teaching and learning

- "Who dares to teach must never cease to learn."
  John Cotton Dana

Dear Teacher,

You are about to use an exciting, cutting edge technology to connect with Liberty Science Center (LSC), one of the best resources available to support your science program. Through videoconferencing technology, LSC will become a unique collaborative partner to support your classroom science investigations. Your participation is essential. We need you to help us engage your students and to clarify for them the connections and relationships the lesson has to their ongoing class work. We depend upon your involvement so that what we have to offer creates a positive learning experience.

To ensure your connection with LSC is the best it can possibly be, the following suggestions may be helpful:

• If your students will be seated at desks, please make name cards. Using 8 1/2 x 11 paper, fold it in half lengthwise and print each name using big, bold, dark lettering.

• Be able to move freely around the room. This is an effective way to keep your students engaged.

• Test any visuals you want to share with us before connecting

• Have on hand any materials and supplies requested

How to start: Read through this packet and then discuss the nature of the connection and the expectations you have for your students participation. Talk about what they are about to experience and how it relates to current studies taking place in your classroom. We will be asking your class to do an activity with us, which might have them moving around the room, working in small groups or manipulating materials.
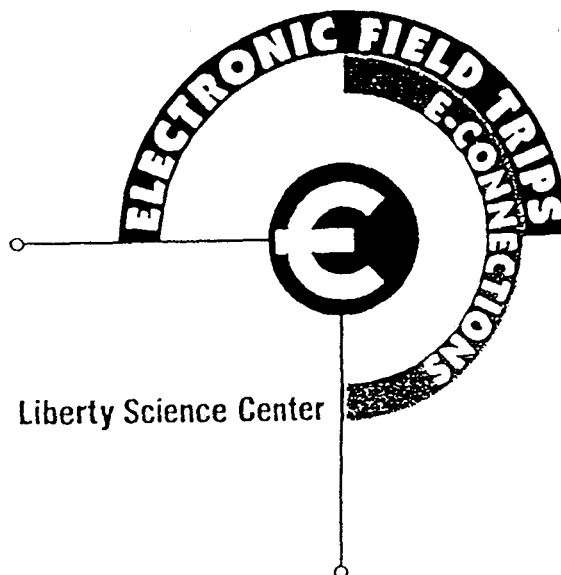
We are looking forward to working with you and your students during this Electronic Field Trip

"See" You Soon!

Liberty Science Center

Brief Description of Standards

ELECTRONIC FIELD TRIPS
E-CONNECTIONS

Liberty Science Center

New Jersey Core Curriculum Science Content Standards

5.1	Identifying systems
5.2	Conducting systematic observations
5.3	Tracing historic origin
5.4	Understanding technology
5.5	Integration of mathematics
5.6	Organisms
5.7	Diversity of life
5.8	Matter
5.9	Physics
5.10	Earth science
5.11	Astronomy and space science
5.12	Understanding the environment

New York Learning Standards For Math, Science, and Technology

1	Mathematical analysis, scientific inquiry, engineering design
2	Using appropriate technology
3	Mathematics: integration and application
4	Science: integration and application
5	Technology: integration and application
6	Relationships and common themes
7	Problem solving in the real world

National Science Education Standards

A	Science as inquiry
B	Physical science
C	Life science
D	Earth and space science
E	Science and technology
F	Science in personal and social perspectives
G	History and nature of science

Cross Curriculum
Geometry in Nature

Standards Addressed:

New Jersey Core Curriculum Science Content Standards: 5.1, 5.2, 5.4, 5.5
New York Learning Standards for Math, Science and Technology: 1, 2, 3, 4, 5, 6
National Science Education Standards: A, C, E

Objectives:

- To explore different types of symmetry.
- To investigate the basic concepts of fractal geometry.
- To discover and identify the geometry in nature

Exhibit Description:

LSC's Stream Table is an interactive exhibit that enables guests to experiment with the effects of erosion
Guests manipulate water and a soil substitute, Plastigrit (recycled lunch trays), to model river systems
and observe the patterns that emerge.

Terms to Know:

- Young Scientists: asymmetry, fractal geometry, Sierpinski Triangle, symmetry
- Older Scientists: bilateral symmetry, rotational symmetry, translational symmetry

Activity: Sierpinski Triangle

Fractal geometry looks at shapes that repeat themselves at any scale on which they are examined.
Still confused? Try creating one with us.

Materials (per student):

- 8 1/2 x 11 paper
- Pencil
- Ruler

Procedure:

1. Draw an equilateral triangle. Each side should be 8 long.

2. Find the midpoint of each side and mark it

3. Draw a line connecting the marks, forming an equilateral triangle in the center

4. Shade it in.

5. Repeat steps 2-4 in each in the smaller remaining triangles

6. Continue to repeat.

Things to Think About:

- How many times were you able to repeat? Take a good look at one section and compare it to the whole. What are your observations?

In case of an emergency during a connection
## call 201 401 1692 or 201 451 0006, ext. 0

||||||||| ||||||||||||||||||||||||||||| |||||||||||||||||||

Cross Curriculum
Extensions

Websites:

- Dance of Chance
    - polymer.bu.edu/museum

- A Fractal Lesson-Recongnitions
    - math.rice.edu/~lanius/frac

- Boston University, Center of Polymer Studies, Image Gallery
   - polymer.bu.edu/~trunfio/images.html

Literature:

- Young Scientists:
    Lots and Lots of Zebra Stripes: Patterns in Nature, Stephen R Swinburne, Boyds Mills Press, 1998

    Echoes for the Eye: Poems to Celebrate Patterns in Nature, Barbara Juster Esbensen, Harpercollins Juvenile Books, 1996.

- Older Scientists:
    The Self-Made Tapestry: Pattern Formation in Nature, Philip Ball, Oxford University Press, 1998

    Fractals: The Patterns of Chaos: A New Aesthetic of Art, Science and Nature, John Briggs Touchstone Books, 1992.

Liberty Science Center

Notes
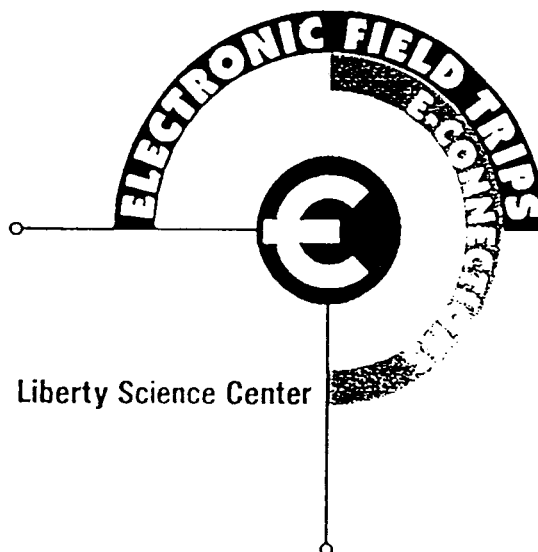
The Electronic Field Trip program is a continually evolving program.

Your evaluation will help improve the program. Please complete this evaluation with your students, and return it to us using the reverse side, or fax to 201 451 6383.

Liberty Science Center
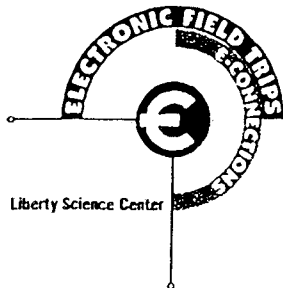
School _____

Teacher _____

Phone # _____

School Address _____

Grade level(s) _____ Total Group Size _____

Date _____

Which technology do you use?   ITV   1 ISDN   3 ISDN

Name of Connection _____

Please fill in the circle that best depicts your answer:

Was this your first time connecting via video conferencing to Liberty Science Center?

                                                          Yes   No

Were there any technical problems with the connection?   Yes   No

If Yes, what were they? Were they solved? _____

_____

Please circle the number that best depicts your answer:

1 = Strongly Yes   2 = Yes   3 = No   4 = Strongly No   0 = No Opinion

	1	2	3	4	0
The instructors were knowledgeable/helpful	1	2	3	4	0
The technology increased the educational value of the lesson	1	2	3	4	0
All questions were answered clearly	1	2	3	4	0
This experience met your expectations	1	2	3	4	0
The program and activities were applicable to your classroom	1	2	3	4	0

How did your class respond to the activities during the program?

_____

_____

Did you incorporate this program into your curriculum? If so, How?

_____

_____

What other demonstrations/information would you like to have accompany this experience?

_____

_____

Would you like to do another program in the future? Why?

_____

_____

Thank you for taking the time to fill out this form!

Education & Community: Distance Learning

Lectures & Classes   Youth & Family Programs   Films, Festivals, Concerts & Special Events   L

Libraries   Teacher & School Programs   Online Activity   Community Connection

Distance Learning (Video Conferencing):

- Overview
- Highlighted Programs
- Things You Need To Know

Contact:

Indianapolis Museum of Art
Distance Learning Coordinat
317.923.1331, ext. 218
distancelearning@ima-art.or

Overview

The IMA offers interactive video distance learning sessions to schools throughout the United State topics are varied and cover Impressionism, China, Hoosier artists, Japan, contemporary art and m

Most programs can be adapted to any grade or interest level, including elementary, middle and hi students, educators and community members. Standards and disciplines addressed are listed with program descriptions.

Highlighted Programs

- **The IMA as a Resource**
  Introduces teachers to IMA distance learning programming.
  Standards and disciplines

- **Speak to Learn Game Show**
  Your class works in teams to express ideas and answer questions about art while using th they are studying. Languages offered: Spanish, German, French, or ESL.
  Standards and disciplines

- **Eye Wonder: The Art of Science**
  Students play with scientific questions that artists such as Monet, Seurat and some of the artists have asked themselves about the connection between what the eye senses and wh.
  Standards and disciplines

- **Dream Big: Art and Dr. Martin Luther King's Vision**
  Examines the connections between themes in King's *I Have a Dream* speech and IMA worl artists who have struggled to have their voices heard. (This program is free if you schedul Museum visit, funded through the generosity of Ameritech.)
  Standards and disciplines

- **What's Your Sign? Decoding Medieval Imagery**
  Students decode medieval symbols to better understand the link between art and social st past and present and then create their own symbols.
  Standards and disciplines

- **The Good Life**
  Students reflect on what it means to have "the good life" by discussing how the concept h

Standards and disciplines

- **Royal Riddle in African Art**
  Explore the role of art in communicating power and social ideals through proverbs and sy
  ancient Egyptian, Yoruba and Akan cultures.
  Standards and disciplines

- **On the Wall: Drawing on Math**
  The Museum hired a world-famous artist to solve a big art problem at the Indianapolis Mu
  and he used math to do it! Students work to figure out the process.
  Standards and disciplines

- **Make Your Mark**
  Take a closer look at images from the exhibition *The Print in the North—the Age of Albrec*
  Lucas van Leyden: Selections from the Metropolitan Museum of Art, (featured at the IMA I
  September 7, 2002 through February 23, 2003) and examine the minute details in Northe
  prints that reveal the symbolism of the day.
  Standards and disciplines

- **Training Camp—Academic Superbowl and Decathlon**
  Academic Decathlon—Understanding the Natural World
  Academic Superbowl—The Middle Ages 1000-1485
  Help your students prepare for their upcoming competitions by discussing the stated them
  relate to art.
  Standards and disciplines

Things You Need to Know

- The IMA will send pre-broadcast materials to help teachers prepare students.
- Connections are scheduled with a 15-minute test time *before the programs begin*. A facilit
  school must be present during the test and the program.
- Video broadcasts are available Monday through Friday between 7:30 am and 5:00 pm ES
- Recommended class size is 20 to 30 students.
- All programs address national and state standards. Programs can be formatted to suit any
- Program cost is $95 (not including line charges). If three or more programs are scheduled
  to $80. Customized programs not listed above are $120.
- Cancellations must be received 48 hours in advance in order to receive a full refund.

PITMAN HIGH SCHOOL
225 LINDEN AVENUE
PITMAN, NEW JERSEY 08071
856-589-2121
Fax: 856-589-8855

J. B. GRENNOR
Principal

JAY L. STILLMAN, Jr
Assistant Principal

Mrs. Janet Jones
Manager of Permissions
Teacher's Video Company
P.O. Box 4455
Scottsdale, AR 85261

November 1, 2002

Dear Mrs. Jones:

As a follow-up to our email exchange of yesterday (Oct. 31, 2002), I am requesting permission to show your excellent videotape, *The Native Americans*, in my distance education course this winter. Our school purchased this tape from your company in 2002 but did not obtain the transmission rights at that time.

The course is entitled "Native American Culture" and is expected to enroll approximately 120 students, including 10 who will be participating at off-campus location. The course will be transmitted within our school district to 3 elementary schools. A backup recording of the entire class period will be made at the origination site and made available to students who were not present. This tape will be provided for viewing only in a controlled access environment with no reproduction equipment accessible. The tape will be erased after one month.

The anticipated date of use is December 10, 2002. I would appreciate your response by November 24 so I can make alternative course plans if necessary. I do hope you will honor this request, however, because your tape is a highly informative depiction of Native American culture and will be extremely valuable to our students.

Thank you for your consideration. Please contact me directly if I can provide further information.

Sincerely,

Marsha Hahn, Educational Media Specialist

Phone: 856-589-3731   Fax: 856-589-8111   Email: mhahn@pitman.k12.nj.us

Building on our unique traditions, the mission of the Pitman School District, in partnership with families and our community, is to educate all students through exceptional learning experiences to be discerning, ethical, confident citizens.

PITMAN SCHOOL DISTRICT
DISTANCE LEARNING/VIDEOCONFERENCING/
ELECTRONIC FIELD TRIP   CHECKLIST

*Date of Conference:*_____ *Time:*_____

*Purpose:*_____

Far End: _____

ISDN Numbers: _____ *Speed* _____

*Telephone Number:*_____

*Near End:*_____

  ISDN Numbers: _____ *Speed:*_____

Telephone Number: _____

Technical Contact: _____

WELL IN ADVANCE:

_____ *Practice using equipment*
_____ *Prepare lesson plan and materials and obtain copyright clearance, if necessary*
_____ *Schedule date and time for videoconferencing*
_____ *Arrange for remote facilitators, guest speakers, technical support, etc.*
_____ *Reserve equipment/room*
_____ *Consider how you will set up the room (background, seating, etc.)*
_____ *For more than two sites (multipoint) Schedule a bridge*
_____ *Deve0lp a back-up plan in case of technical problems*
_____ *Schedule a practice session*

ONE WEEK PRIOR TO CONFERENCE:
_____ *Share your expectations with participants*
_____ *Make sure the remote site has necessary materials*
_____ *Share ISDN and telephone numbers and determine who will place the call*
_____ *Find out who to contact is there are problems*
_____ *Practice with remote facilitators*
_____ *Decide what to wear (avoid loud patterns, black, red and*

white)

DAY OF THE CONFERENCE:

_____ *Reboot system if necessary*

_____ *Arrange the room*

_____ *Connect with remote site 15-30 minutes prior to the meeting time*

_____ *Check audio, video, lighting, auxiliary equipment, (document camera, etc.)*

_____ *Preview local camera angle and preset angles if possible*

_____ *Keep ISDN and telephone numbers handy during the conference*

_____ *View yourself occasionally (Make sure the other end can see whomever is speaking)*

PITMAN DISTRICT VIDEO CONFERENCING INFO

	ISDN Line (Akin to phone lines)	IP (Computer)
Memorial School	856-256-2690 856-256-2691 Speed: 384	209.146.26.69 Speed: 768
	Voice Contact: Sara Bailey 856-589-2526	
Middle School	856-256-2034 856-256-2035 Speed: 384	209.146.26.70 Speed: 768
	Voice Contact: Chris Morris 856-589-0636	
Pitman High School	856-256-7507 856-256-7508 Speed: 384	209.146.26.71 Speed: 768
	Voice Contact: Marsha Hahn 856-589-3731	
Kindle School	856-589-7501 856-256-7502 Speed: 384	209.146.26.72 Speed: 768
	Voice Contact: Jean Ewe 856-589-2628	

November 2002

VIDEO CONFERENCING WEBSITES

Garden State Distance Learning Consortium: http://www.gsdlc.org

Camden Children's Garden: http://www.camdenchildrensgarden.org

Elephants Sanctuary: http://www.elephants.com

Health Museum of Cleveland: http://www.healthmuseum.org

Ocean Institute: http://www.ocean-institute.org

Pacific Bell Knowledge Network: www.kn.pacbell.com/wired/vidconf/director\.html

VIRTUAL FIELD TRIPS

FIELD TRIPS site: www.field-trips.org

11/06/02

Biographical Data

Name	Marsha Knight Hahn
High School	Passaic High School Passaic, New Jersey
Undergraduate	Bachelor of Arts Elementary Education Paterson State College Wayne, New Jersey
Graduate	Master of Arts School Librarianship Glassboro State College Glassboro, New Jersey
Graduate	Master of Arts School Administration Rowan University Glassboro, New Jersey
Present Occupation	Educational Media Specialist Pitman High School Pitman, New Jersey