Participant perceptions of video link distance learning effectiveness in adult health continuing education and training
by Lynis Ann O'Malley

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Education in Education
Montana State University
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Abstract:
As an educational industry, distance learning takes advantage of almost every means of communication from traditional postal mail, e-mail, telephone, fax, and the Internet to the most advanced technology of high-speed telephone lines and satellites. This study described participants’ perceptions of video link distance teaching effectiveness in adult health care education and training. The study data was gathered from a Montana video link continuing education and training statewide presentation of recommended quality improvements and federal requirements for long term care facilities. Data was obtained by direct observation of the presentation, by an immediate post-program survey and by an eight month follow-up survey of participating facilities. The study outcomes indicated attainment of general information and specific information pertaining to quality issues and essential regulation changes was important to participants and their organizations. Cost effectiveness through reduced travel benefited participants as well as facilities. An unexpected finding was the number of long term care facilities not enrolling participants in the training program or experiencing staff turnover, who wanted access to the training content (workbook and video tape of the proceedings) to train new personnel. Video link technology was viewed as an effective template for teaching/learning, but opportunities were identified to improve the use of this technology. Back up, less technically dependent methods of education should be available, as periodic system glitches or crashes are expected,
PARTICIPANT PERCEPTIONS OF VIDEO LINK DISTANCE
LEARNING EFFECTIVENESS IN ADULT HEALTH
CONTINUING EDUCATION AND TRAINING

by

Lynis Ann O’Malley

A dissertation submitted in partial fulfillment of the requirements for the degree of
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APPROVAL

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Lynis Ann O’Malley

This dissertation has been read by each member of the dissertation committee and has been found to be satisfactory regarding content, English usage, format, citations, bibliographic style, and consistency, and is ready for submission to the College of Graduate Studies.

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ABSTRACT

As an educational industry, distance learning takes advantage of almost every means of communication from traditional postal mail, e-mail, telephone, fax, and the Internet to the most advanced technology of high-speed telephone lines and satellites. This study described participants' perceptions of video link distance teaching effectiveness in adult health care education and training. The study data was gathered from a Montana video link continuing education and training statewide presentation of recommended quality improvements and federal requirements for long term care facilities. Data was obtained by direct observation of the presentation, by an immediate post-program survey and by an eight month follow-up survey of participating facilities. The study outcomes indicated attainment of general information and specific information pertaining to quality issues and essential regulation changes was important to participants and their organizations. Cost effectiveness through reduced travel benefitted participants as well as facilities. An unexpected finding was the number of long term care facilities not enrolling participants in the training program or experiencing staff turn over, who wanted access to the training content (workbook and video tape of the proceedings) to train new personnel. Video link technology was viewed as an effective template for teaching/learning, but opportunities were identified to improve the use of this technology. Back up, less technically dependent methods of education should be available, as periodic system glitches or crashes are expected.
CHAPTER 1

INTRODUCTION

A demand for skilled professionals is one reason distance learning has developed into an educational industry. The technology employed in distance learning takes advantage of almost every means of communication—from postal mail, telephone, and facsimile, to the Internet and e-mail, high-speed telephone lines, cable television, and satellites. The knowledge associated with the technological delivery of instruction has outdistanced what is known about participants’ assessment of the effectiveness of a video link distance-learning experience. Though changes in technology have led to an ongoing dialogue about distance learning, information about the learner and the learner’s perceived needs is still being gathered. Even less has been written about the efficacy of health care continuing education/training via distance learning or the perceived value of the offerings from the adult learner’s perspective. What do adult health care professionals like most about video link distance learning for continuing education and training?

Distance learning, a process that allows students to participate in learning or educational endeavors (most often) at a time or place of the learner’s choosing, has been available for more than 150 years and is about bringing knowledge and people together. Simonson, Smaldino, Albright, & Zvacek (2000) describe the earliest correspondence composition course through a Swedish newspaper in 1833. These first distance-learning offerings were brought to eager learners by the postal system. Throughout the last two
centuries, distance learning has continued to bridge the boundary of geographic separation, bringing knowledge and information to lifelong learners.

Postal mail, the earliest form of distance-learning delivery, brought university courses to students who then returned completed course work to professors for feedback and credit. As they have for more than 150 years, correspondence courses via mail service continue to be popular. Perhaps the most enduring aspect of correspondence courses is their ability to reach place-bound students who cannot otherwise participate in a traditional university or technical school. Learners of all ages and backgrounds can access correspondence offerings on diverse subject matter such as building, college completion, veterinary assisting, medical assisting, and court reporting.

Another form of distance learning is radio broadcast. Using structured formats and offering almost any type of primary, secondary, or post-secondary courses, radio broadcasts have delivered countless hours of education to remote learners. Particularly important to continents and states such as Africa, Australia, and Alaska, schools of the “airways” deliver content over long distances and, in the case of shortwave radio, solicit learner feedback and questions.

Still a popular learning medium, audiotape brings recorded lectures directly from the classroom to virtually any location the learner chooses. Because the learner cannot “see” the material, audiotape programs often boost effectiveness through the use of prepared materials, diagrams, or graphics to supplement the audio program.

Videotape cassettes of classroom-based or studio-prepared lectures have also been a popular vehicle for transferring knowledge to students who are unable to attend
traditional classes because of job or family demands. Like postal and audiotape delivery, video cassettes permit learner participation at the time and place of the learner’s choice (Moore & Kearsley, 1996).

Widely used in the 1970s and 1980s and still popular today, telephone conferencing provides one- or two-way audio discussions and classroom lectures for many learners, affording students in rural states such as Montana the opportunity to obtain needed course work in their community. The 1995 survey of two- and four-year higher education institutions offering distance education courses indicated 11% continue to offer two-way audio and 10% of all institutions offered one-way audio (Lewis, Alexander, Westat, & Greene, 1997).

In recent decades, television station or satellite-facilitated broadcasts have gained advocates by providing visual input in addition to audio for the learner. As television programming advanced, participants were able to telephone questions directly into the program and, in recent years, two-way video conferencing has provided nearly simultaneous transmission of picture and audio from multiple locations to multiple locations using both cable and high-speed telephone bandwidth transmission.

The Internet, a network of computers throughout the world, provides numerous services including e-mail and access to the World Wide Web (Newton, 1999). This system was first used in 1973 by scientists at the United States Department of Defense to link facilities in government agencies and universities through a common switching network and a common telecommunications protocol (Harnack & Kleppinger, 1997; Moore & Kearsley, 1996; Nader, 1992). The worldwide distribution of personal
computers and ever-increasing access to the Internet has expanded its use to millions of people.

The Internet explosion has generated computer distance-learning offerings on every topic imaginable. The low cost of program delivery to nearly any location (remote locations rely on wireless transmission, either digital or satellite) combined with "on demand" student access and teacher-student interaction, make Internet computer learning the largest educational growth industry today. The goal to connect "every classroom and library to the Internet" continues to be a major policy effort for federal and state governments (Next Generation Internet [NGI] Initiative, 1999).

While continuing to evolve, the Internet provides access to all educational levels and needs (e.g., kindergarten, high school, college, and workplace). Already NGI initiatives and Internet2 objectives are becoming the quality standards with important implications for remote rural areas without access to: (a) Very high performance Backbone Network Service (VBNS), (b) high-speed bandwidth, or (c) Asynchronous Transfer Mode (ATM) prototypes (NGI, 1999). Lifelong learning promises to be a powerful forum through Internet offerings and delivery.

Video link distance learning, "also called videoconferencing" is a "real time transmission of digitized video images between two or more locations" to provide either one- or two-way audio and video communication (Newton, 1999, p. 855). The typical purposes for such linkage are to exchange information, hold conferences, or disseminate educational materials from one location to another. As multiple writers have described their own or others' programs, many of the terms for these concepts such as distance
learning or distance education have become interchangeable. Some writers use terms describing the purpose of the communication experience as in distance learning; others focus on describing the medium as in video link. To clarify what and how the learning experience is occurring, future descriptions might provide readers with details such as synchronous versus asynchronous. Video link communication, for example, is synchronous communication indicating that it occurs simultaneously at all sites (Connick, 1999).

In the early 1990s, the excitement generated through linking multiple distant campuses generated millions of dollars in federal grants for organizations implementing distance-learning networks. Government officials recognized the enormous potential of simultaneous transmission of audio and video images to countless locations throughout the United States and the world, and they set aside federal grant monies to push the new technologies into remote communities. As the decade ended, video link communications had evolved dramatically—broadcast technology improved and interactive participation increased while transmission or bandwidth costs decreased.

Presently, the primary reason to use video link communications rather than Internet communications relates to audience size and course purpose. Video link communications, frequently using traditional lecture formats can be broadcast at specific times to and from multiple locations allowing for simultaneous participation from many learners. This technology has the capability to provide large in-house training programs for any needed job training or certification. As training and educational costs have
impacted university, industry, and government budgets, the ability to provide cost-effective training becomes essential.

Technology breakthroughs, industry shifts, and market forces drive continuing education and workforce education/training. For workers, lifelong learning has become an accepted reality. The global economy and aging population further influence the demand for cost-effective, rapid communication of time-sensitive information and training. The line narrows daily between university-based post-graduate course work, seminars, continuing education and profession-based seminars, professional meetings/conventions, certification, and training. Increasingly, collaborative efforts between universities and work settings are evolving. Determining which factors are necessary for successful video link communication programs for adult participants could assist program planning for learning facilitators. In health care, where training dollars have shrunk dramatically over the past five years, effective video link programs may maximize important training dollars while conveying critical information updates for health professionals.

Telemedicine, particularly early in the 1990s, was also used interchangeably with video link distance learning. This was in part because the same technology was used for both patient care discussion and examination as well as for distance-learning offerings. The definition of telemedicine continues to evolve together with technology, the market place, applications, and users (Mitchell, 1998). Telemedicine pioneers Perednia and Allen define telemedicine “as the use of telecommunications technologies to provide medical information and services.” These early physician users of telemedicine acknowledged that their definition included “medical uses of the telephone, facsimile, and distance
and was a way to describe the multiple uses ascribed to this interactive video consultation (1995, p. 483).

Despite video link distance-learning advantages, there are disadvantages, foremost of which is broadcast quality. Program quality can be limited by numerous factors including: (a) camera locations impacting visual perceptions, (b) audio clarity, (c) transmission interruptions, and (d) audiovisual difficulties. Separation of the learner and facilitator and learner-to-learner interactions can also pose challenges.

Montana’s Vast Topography and Specific Health Care Challenges

With its name derived from the Latin word for mountains, Montana is the fourth largest state in the Union. The Rocky Mountain front traverses the western region and high plains spread to the eastern border. This topography contributes to the rural nature of this state, whose population is widely and sparsely distributed among farms, ranches, and small cities and towns.

Many of Montana’s 56 counties are considered either Medically Underserved Areas/Populations (MUAs) or Health Professional Shortage Areas/Populations (HPSAs). The ethnic composition of Montana and the high-risk occupations of farming, ranching, logging, mining, and petroleum create risks and potential problems for residents of these areas. Additional perceived and real obstacles face Montanans: (a) many Native Americans are reluctant or unable to leave their communities; (b) highly populated Native American counties such as Big Horn, Blaine, Glacier, Hill, Roosevelt, Rosebud, and Valley have a poorer socio-economic status compared to larger communities; and (c)
peak seasons for work contribute to the reluctance of some Montanans to seek medical
attention for any but the most serious health issues.

By the end of the 1990s, small rural hospitals throughout Montana changed their
umbrella of care from empty and poorly reimbursed hospitals to Medical Assistance
Facilities (MAFs) that were linked to regional hospitals and population centers. At the
same time, aging Montanans who required assisted living, transitional care units, and
skilled nursing home services continued to make up a significant portion of the
population.

While the need for on-the-job training is increasing, available educational monies
are shrinking. Correspondingly, Montana statutes and state agencies require ongoing
health education to ensure competent care givers for its citizens. Certified Nursing
Assistants (CNAs) in skilled nursing centers, for example, are required to have 12 hours
of continuing education annually. Without continuing education, certification lapses and
facility reimbursement is withheld or delayed. Presently, CNA training is approached
through travel by staff to other population centers in Montana for educational offerings,
internal instructors hired by the organization, or purchased educational offerings. Through
distance learning, CNAs can obtain the required hours and avoid the negative
consequences of a federal, state, or commission deficiency determination (i.e., withheld
reimbursement).

Amplifying access issues faced by rural nurses, Cudney (1991) included a letter
"based on actual correspondence" from a rural nurse in her article addressing continuing
education issues:
I saw the advertisement for your gerontological workshop series to be presented in Great Falls in November, January and February. I will not be there, and I want to tell you why. I live in the northeast corner of Montana and, though you claim Great Falls is centrally located, it means I would have to travel over 400 miles (one way) to get there, possibly in a snowstorm given the months you have chosen. It would take me one day each way to drive, not to mention the price of gas, plus a motel bill for three nights and the registration fee (though $100 for three 2-day workshops is pretty reasonable!). Besides that, my disabled elderly mother lives with us, and I prefer not to leave my teenagers unsupervised for nearly a week. My nursing home administrator tells me I will not be paid for the days I am gone, and can’t get anyone to cover for me anyway. I hope you are planning to offer the workshops again, possibly in Sidney, which is only 100 miles away. (p. 29)

Accessibility, economics, and family responsibilities are typical issues facing adults pursuing lifelong learning experiences.

An increasing challenge is the fact that nurses caring for aging populations are themselves aging. The average age of working registered nurses in the United States is 41.9 years (Buerhaus, Staiger, & Auerbauch, 2000). With another nursing shortage identified for the nation, initial preparation, training, and continuing education become important policy issues. Accordingly, increased training demands, together with fewer dollars to expend and place-bound professionals, position Montana’s video link communication programs as ideal resources. Whenever and wherever they can, many organizations initiate video link distance-learning offerings though factors contributing to the benefit to participants of such offerings has seldom been assessed.

**Background of the Problem**

The need for research on the effectiveness of distance education has been well documented (Holmberg, 1995; Holt, 1998; Kleiber, 1996; Moore, & Kearsley, 1996;
Simonson et al., 2000; Swenson, Rees, & Milton, 1998). Recent studies comparing distance education effectiveness have begun to demonstrate effective learner outcomes when compared to traditional teaching and learning (Simonson et al., 2000). Studies of health care professionals have most often focused on completion of bachelor of science in nursing degrees for “off-campus” registered nurses (Shomaker & Fairbanks, 1997). Few studies explore health professional training for continuing education via distance-learning technology.

Established theories of distance learning have well portrayed many key components of the process and provided valuable comparison with traditional learning: (a) Börje Holmberg looks at student-teacher interaction and communication; (b) Otto Peters proposes industrial theory to develop distance learning; (c) Charles Wedemeyer relies on independent study theories to support distance education; (d) Michael Moore combines Wedemeyer’s and Peters’ theories to formulate the theory of transactional distance; (e) Hilary Perraton synthesizes numerous “existing theories” (Simonson, 1997, p. 35); (f) Michael Simonson supports distance learning as “equivalent” to “local” learning; (g) Desmond Keegan believes distance education is a distinct form of education and proposes “distance instruction is possible, but distance education is not” (Simonson et al., 2000, p. 35); (h) Farhad Saba examines system dynamics; (i) Garrison, Shale, and Baynton explore learner autonomy; and (j) David Kember’s open-learning model looks at student success factors (Moore & Kearsley, 1996; Saba & Shearer, 1994; Simonson, 1997). Each of these theories offer information about what is known about distance
learning. Some specifically address the influence technology has on distance learning whereas others amplify earlier theories of distance education.

Early distance learners were time- and space-independent using mail delivery and written communication to bridge the physical separation of teacher and learner (Moore & Kearsley, 1996; Simonson et al., 2000). Today, nearly every form of distance learning is also used to provide health care professional continuing education. Recent advances in videoconferencing/video link technology have prompted those providing continuing education to utilize this real time technology to bring training to more places and participants.

The Problem

Rosemary Caffarella, considered a leader in adult learning, adult development, and program planning, emphasizes that there are “numerous approaches to or models of education program evaluation.” Caffarella maintains, regardless of which approach is used, if improvements are implemented, “interested parties” benefit from the evaluation information and feedback (Caffarella, 1994, p.125).

State and federal continuing education and training programs generally require some type of participant feedback; however, time and funding resources can be a limiting factor in applying evaluation outcomes to future offerings. Further, the process of determining what occurs during training programs can also be seen as a negative experience for facilitators and participants alike, if the information gained is not used for positive improvements (Caffarella, 1994).
Distance education theorists have also encouraged program evaluation including determination of learner enjoyment and satisfaction to improve distance education (Mantyla & Gividen, 1997; Moore & Kearsley, 1997; Simonson et al., 2000). Despite overall support for evaluation, Moore and Kearsley maintain that routine assessment of materials and media is "one of the weakest elements in the design and development of many distance education programs" (1997, pp. 120-122). In addition, evaluation tools may be ineffective because they focus solely on one element of program delivery or learner satisfaction. Because distance learning utilizes sophisticated technology in a unique learning/training environment, special dimensions are added to the evaluation design. Accordingly, distance education programs must evaluate both the participants perceptions or the participants transfer of learning as well as the instructional process (Caffarella, 1994; Mantyla & Gividen, 1997; Moore & Kearsley, 1997). Such deliberate attention to every component of the distance learning experience can provide valuable information capable of supporting program alterations, program continuation or even program expansion.

In a time of resource accountability, providers of distance professional training need to know what effect their presentations have on professionals in the field. If organizations can identify what participants like about distance learning, they may be able to successfully develop diverse distance education and training programs targeted to achieve local, regional, or even national objectives.

As a result of federally mandated regulation, quality and survey changes, the Certification Bureau of the Quality Assurance Division, Montana Department of Public
Health and Human Services, planned the continuing education and training program to provide professionals in long-term care with the needed continuing education. To accomplish delivery of the information to a state as large as Montana with more than 100 long-term care facilities, the Quality Bureau decided to utilize a distance education format with multiple locations. This provided an opportunity to study the overall perceptions participants experienced through distance education and training.

**The Purpose**

The purpose of this study was to assess participant perceptions of video link distance learning effectiveness in adult health care continuing education and training. Perceptions of participants in the Certification Bureau’s agency training program, Survey Agency Training (MetNet) on HCFA Quality Indicators/Survey Process Changes and Best Practice Guidelines that was broadcast to nine locations over MetNet, the Montana education telecommunications network in July 1999 were examined.

**Study Framework**

To understand participants perceptions of the video link experience, the framework for this case study, primarily based on qualitative methods appropriately supported by quantitative data (Gay, 1996). The study focused on individual responses to an evaluation survey questionnaire gathering descriptive data. Areas of particular interest included broadcast quality, participant recommendations, and location-specific influences. Eight months later, agencies that had participated were provided with a short
summary of the initial experience (to refresh their memory of events) and again asked to indicate their perceptions about the value of the distance-learning experience. Some facilities had already been surveyed using the new HCFA quality indicators and survey process.

In addition to the written survey information, on-site observations and interviews were conducted each day of the two-day training program. Questions arising from reviewing the combination of written and verbal input, together with videotapes of two sites, contributed to the formation of the follow-up questions administered eight months following the initial experience. The multiple methods and data sources, "characteristic of qualitative research" can facilitate understanding of the case study (Gay, 1996, p. 217). It was anticipated by the researcher and the program organizers that successful realization of the study's purpose, would provide valuable information which could be used to enhance the quality and efficacy of future video link distance learning presentations.

Research Questions

The research questions guiding this study were:

Research Question 1: What are participant perceptions about using video link distance learning for continuing health care education?

Research Question 2: Would the quality of the educational presentation have been better in person?

Research Question 3: What do participants recommend program planners consider when planning future continuing education/training programs?
Research Question 4: Did the participants perceive that the video link technology affected the continuing education/training experience positively or negatively?

Definition of Terms

Certified Nursing Assistant (CNA)

A person completing the education and training required by the Nurse Aid Registry through the Certification Bureau, Quality Assurance Division of the Department of Public Health and Human Services, State of Montana in basic nursing techniques and direct patient care practicing under the supervision of a registered nurse. Seventy-five hours of an approved training program and 12 hours of continuing education are required annually by the state of Montana. These minimums meet federal regulations relating to nursing assistants minimum training (Anderson, Anderson, & Glanze, 1998; Green, 2001).

Health Care Financing Administration

HCFA is an acronym for Health Care Financing Administration, the federal branch of the government overseeing quality for the government’s health care programs such as Medicare, Medicaid, and so forth.

Health Professional Shortage Area (HPSA)

Health Professional Shortage Areas are divided into three major subtypes according to the type of professional shortage: primary medical, dental, and psychiatric or mental health. Forty counties in Montana fall into one or more of these subtypes.
**Interactive Television (ITV)**

Satellite delivery of distance education via interactive television (Shomaker & Fairbanks, 1997).

**Long-Term Care (LTC)**

The provision of medical, social, and personal care services on a recurring or continuing basis to persons with chronic physical or mental disorders. The care may be provided in environments ranging from institutions to private homes. Long-term care services usually include symptomatic treatment, maintenance, and rehabilitation for patients of all age groups (Anderson, Anderson, & Glanze, 1998).

**Medically Underserved Area**

A Medically Underserved Area occurs when there is less than one primary care provider for each 3,000 people. A primary care provider can be any and all of the following specialties: family practice, internists, obstetrics-gynecology, or pediatrics. Thirty-six counties in Montana meet the MUA criterion.

**Participant Perceptions**

The participants, members of the study group, provide their insight, knowledge gained, or awareness of the activities or events relevant to the case study (American Heritage College Dictionary, 1997; Gay, 1996; Merriam & Simpson, 2000.)
Quality Assurance Division of the State of Montana Department of Public Health & Human Services (DPHHS)

This division of the DPHHS certifies provider and recipient compliance with state and federal regulations, monitoring Medicaid provider payments; providing independent audits and review.

The Certification Bureau is responsible for the certification of health care facilities and laboratories enrolled in Medicare and Medicaid programs (Montana Department of Commerce, 2001a).

Skilled Nursing Facility (SNF)

An institution or part of an institution that meets criteria for accreditation established by the sections of the Social Security Act that determine the basis for Medicaid and Medicare reimbursement for skilled nursing care. Skilled nursing care includes rehabilitation and various medical and nursing procedures. Written policies and protocols are formulated with appropriate professional consultation. Law requires that these policies designate which level of care giver is responsible for implementation of each policy, that the care of every patient be under the supervision of a physician, that a physician be available on an emergency basis, that records of the condition and care of every patient be maintained, that nursing service be available 24 hours a day, and that at least one full-time registered nurse be employed. Other criteria stipulate that the facility have appropriate facilities for storing and dispensing drugs and biologics, that it maintain
a use-review plan, that all licensing requirements of the state in which it is located be met, and that an overall budget be maintained (Anderson, Anderson, & Glanze, 1998)

Surveyor

In health care, a surveyor promotes high-quality standards by providing information and feedback to organizations undergoing agency, state, or federal surveys. Surveyors assess the organization’s compliance to designated standards or statutes by conducting surveys and analyzing survey results. Surveyors often act as consultants to the health care organizations providing information to ensure a quality health care environment (Sloane & Sloane, 1992).

Telemedicine

The provision of health care services from a distance using networks supporting audio, video, and computer data transmissions. Telemedicine traditionally uses video conferencing to diagnose illness and provide medical treatment over a distance. Often used to view or teach surgical procedures. Used also in rural areas where health care is not readily available and to provide medical services to prisoners . . . (Newton, 1999).

Transitional Care Unit (TCU)

A nursing unit affiliated with a skilled nursing facility often located within an acute-care hospital to bridge the levels of patient care still required following an acute-care stay and prior to transfer/discharge to another destination such as home, assisted living, rehabilitation, or a skilled nursing facility.
Videoconferencing/Video Link

Video and audio communication between two or more people via a videocodec (coder/decoder) at either end and linked by digital circuits. Formerly needing at least T-1 speeds (1.54 megabits per second), systems are now available offering acceptable quality for general use at 128 Kbps and reasonable 7 KHz audio. Factors influencing the growth of videoconferencing are improved compression technology, reduced cost through VLSI chip technology, lower cost switched digital networks—particularly T-1, fractional T-1, and ISDN—and the emergence of standards (Newton, 1999).

Video Teleconferencing

Also called videoconferencing. The real-time, and usually two-way, transmission of digitized video images between two or more locations. Transmitted images may be freeze-frame (where television screen is repainted every few seconds to every 20 seconds) or full motion. Bandwidth requirements for two-way videoconferencing range from 6 MHz for analog, full-motion, full-color, commercial grade TV to two 56 Kbps lines for digitally-encoded reasonable full-motion, full-color to 384 Kbps for even better video transmission to 1,544 Mbps for very good quality, full-color, full-motion TV (Newton, 1999).

Significance of the Study

The purpose of this study was to assess participant perceptions of video link distance learning effectiveness in adult health care continuing education and training. The
results of this research would contribute to the Quality Assurance Division's overall assessment of their first attempt to use video link distance-education techniques to train health care professionals. The results may be valuable as the organization makes decisions about whether or not to deliver other continuing education and training programs to their stakeholders. Participating long-term care organizations could also benefit from improved dissemination of information to a larger number of potential caregivers. Cost savings resulting from reduced travel could be beneficial for both the facilitators and the participants. If providers of professional distance training know what effects their presentations have on professionals in the field they will be able to plan, organize, and provide continuing education that is more suited to meet the needs of their stakeholders.

Travel for continuing education and training, with an aging registered nursing workforce, is likely to be increasingly difficult in large rural states like Montana (Buerhaus et al., 2000). Encouraging utilization of video link technology particularly if equivalent to on-site training may help organizations and professionals cope with training and continuing education needs (Simonson et al., 2000).

Assumptions and Limitations

A key assumption under which this study was conducted was that participants offered their evaluations candidly. The written evaluation survey was constructed to be nonthreatening. Participants were told the purpose of the questions was to help improve future video link programming. Several open-ended questions were framed to contrast
with “Likert technique questions” (Merriam & Simpson, 2000, p. 163). Demographic and educational questions were purposely framed at the end of the survey in the belief that this positioning would be least offensive for the participant.

The study was limited to:

(1) Observation of a two-day distance learning experience conducted by the Department of Public Health and Human Services Quality Assurance Division’s Certification Bureau.

(2) Responses of the participants to an 1999 Initial Questionnaire.

(3) Responses of four participants during on-site interviews at the time of the training.

(4) Responses of randomly selected long-term care facilities to a 2000 Follow-Up Questionnaire.
CHAPTER 2

LITERATURE REVIEW

Introduction

Distance education has become an important method of providing learning to diverse audiences in both developing and developed countries. In the foreword of Opening Education, Ross Paul discusses education’s current fascination with distance education and cautions us to see distance education as “simply another means to encourage students to become independent lifelong learners” (1996, p. xi). If, as Paul suggests, distance education is seen as simply a vehicle or, as Evans and Nation suggest, a “learning location,” the important aspect of distance education will be the ability to achieve lifelong learning whether the learner is at home, at work, or involved in other activities (1996, p. 168). Distance education has developed in many locations and through many different media. Adult education, health care professional training, and technological advancements have all impacted distance education. With this in mind, the literature review has been crafted to highlight historical, technological, and theoretical landmarks important to adult education and training, health professional development, and distance education.
Early Days

While definitions of distance education and learning abound, most descriptions indicate that the learning occurs outside the traditional classroom. Hall proposes distance education was and is a “creative” response that extends the “traditional university” to meet student access needs while addressing university mandates to not “grow bigger” (1996, p. 10). Other accounts, where geography or distance from traditional classrooms is an obstacle, describe radio schools that provide primary education for children. Throughout the literature, access to and desire for learning remain constants. Moore and Kearsley’s definition of distance education focuses on the medium:

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. (1996, p. 2)

Distance education can trace its beginnings to “as early as the 1720s” (Holmberg, 1995, p. 3), with most of these early offerings relying on postal service to bring assignments and course materials to students and return responses to instructors. Isaac Pitman is credited with teaching shorthand in 1840 though Great Britain’s “Penny Post.” Shorthand was also “the earliest documented home study course offered in the United States” (Moore & Kearsley, 1996, pp. 20-21). Additionally, the University of Good Hope established an early distance “examining body” in South Africa in 1873 “based on the University of London” (Holmberg, 1995, p. 4).
Soon, correspondence courses became popular venues for study. Home study through correspondence courses in the United States "was formally recognized in 1883 when the State of New York authorized the Chautauqua Institute to award degrees through this method" (Moore & Kearsley, 1996, p. 20). In 1892, William Rainey Harper, with the help of correspondence advocate Richard Moulton who had tried to "establish a degree by correspondence" at the University of Cambridge in England, instituted the "world's first university distance education program" through an extension division at the University of Chicago (Moore & Kearsley, 1996, pp. 20, 22).

With rail and mail service flourishing, newspaper advertisements for home study increased. Work-related study for mine and railroad safety together with course work for women are described in early accounts of distance education. Through Anna Eliot Ticknor's home study school, the Society to Encourage Studies at Home, thousands of students from across the United States participated in a "broad range of courses" during the school's 24 years of operation from 1873 until Ticknor's death in 1896 (Moore & Kearsley, 1996). As connections and communication improved throughout many parts of the world, correspondence schools and distance education gradually gained recognition.

Agricultural Knowledge Disbursement Flourishes While U.S. Medicine Lags

Throughout the 1800s, a growing number of adult educational activities were occurring throughout all sectors of American life. The Smithsonian Institute, an early forerunner of adult education, was founded in 1835 "for the increase and diffusion of knowledge among men" (Morison, 1965, p. 536). In the early years of the Civil War,
President Lincoln “signed the Morrill Act of 1862 establishing land-grant universities and colleges in all of the states and territories.” According to this act, teaching “agriculture, mechanics, and other practical subjects” would foster dissemination of new information (Forest, 1989, p. 334). The Grange movement following the Civil War furthered improvements of agricultural practices. As America became more industrialized and more populated, societal approaches to solving everyday problems gave momentum to adult education.

Up until this time, most medical care had been provided by women or midwives in the home (Starr, 1982). Progress in American medicine had been stymied by physicians unable to establish standards or agree on basic medical training (Forest, 1989; Starr, 1982). European physicians, recognized as leaders in medical care, benefitted from libraries of medical literature that supplemented clinical experience (Crandall & Coggan, 1994). As wealthy philanthropists, including Johns Hopkins, endowed universities and hospitals in the late 1800s, “reform-minded American educators like Eliot and Gilman . . . looked to Germany, which had long developed a tradition of secular learning and strong universities and sought to make their own institutions in every way the equal of those in Europe” (Starr, 1982, p. 113).

As the 20th century progressed, top medical schools such as Johns Hopkins achieved an excellence that contrasted significantly with less favorable institutions, so much so that the American Medical Association (AMA) commissioned “an outside group, the Carnegie Foundation for the Advancement of Teaching” (Starr, 1982, p. 118) to investigate medical institutions. The Flexnor report of 1910 described an American
medical education in dire need of reform and resources. The numbers of medical schools declined (including those admitting women and blacks) with those remaining becoming more rigorous, standardizing curricula, and expanding libraries with scientific and medical literature. With the elimination of the lowest-ranked schools, the AMA Council on Medical Education became a powerful force and medicine become a legal, recognized profession (Ehrenreich & English, 1973; Starr, 1982).

Nursing schools arose from upper class women's efforts to ensure clean almshouses and public hospitals and gradually increased from three in 1873 in New York, New Haven, and Boston to “432 by 1900, and 1,129 by 1910,” providing “a source of cheap labor in the form of unpaid student nurses” (Starr, 1982, pp. 154-156). As science and medicine became more complex, nurses facilitated physician remedies, provided housekeeping duties, and nurtured patients. “Well-to-do women” accepting the claims of superior skills by “physicians” gradually turned to physicians and obstetricians foregoing midwives (1982, p. 50). For a time, physicians, feminists, and women facing spinsterhood were all satisfied with the arrangement (Ehrenreich & English, 1973).

**Adult Education and Advancement of Alternative Delivery Systems**

The term “adult education” was not commonly used until the 1920s when, as Beder observes, adult education became a “vital component of our educational system” to address the dynamic demands of the rapidly changing social fabric (1991, p. 38). Formal recognition of adult education, however, “was not established in the United States until
the founding of the American Association for Adult Education in 1926" (Darkenwald & Merriam, 1982, p. 15).

Adult education is multifaceted; it includes continuing education, training, programs, extension, and other activities. Some adult programs are designed to provide adults with information important to their life circumstances or issues related to the social fabric. Others are developed to increase productivity, safety or, in recent years, quality of life. Still other adult programs are primarily concerned with adult development.

The 19th-century development of radio led to widespread use of the medium by the early 1920s. Radio brought educational offerings to children and adults in distant locations around the world. In the United States, adult educational programs broadcast via radio initially focused on ways to improve life. The first radio offerings for credit were produced through the University of Iowa in 1925, and other universities followed Iowa’s lead (Moore & Kearsley, 1996). British programing provided classroom teacher support and fostered adult discussion groups, which in Canada, India, and Africa led to improved agricultural methods (Evans & Nation, 1996). Radio school in the United States was a short-lived medium, eventually losing support and bandwidth to commercial entities.

Radio, however, continues to be important in parts of the world where travel, communication, and energy sources are scarce. Even today, in countries such as Mongolia, new energy developments—wind and solar electrical stations as well as solar-generated and wind-up radios—show promise for educational radio broadcast to remote locations (Arabehaus & Kenworthy, 1996; Moore & Kearsley, 1996).
In Australia (two thirds the size of the United States), the Reverend John Flynn, horrified at the lack of medical care, worked to address the needs of those in remote places. After engineer Alf Traeger developed a pedal radio in 1927, radio became vital in providing health-saving information to remote Australian outposts and led to what became the Royal Flying Doctor Service. With two thirds of Australia still sparsely settled, generators power radios that provide primary education for children and emergency instructions and transport on sheep stations, Aboriginal outposts, and other outback operations (Royal Flying Doctor Service of Australia, 1998).

Although radio has lost momentum overall for university educational programming, some advocates note the particular niche radio has in reaching all ages and income levels. In the late 1980s, Hale and Hollander suggested using radio presentations for health promotion and discussed the value of a live program presentation on a topic of interest such as AIDS where the audience could call in with questions. Additionally, programs could be rebroadcast at different times for student (if for credit) and other listener convenience. Reporting on the experience of one of the authors who conducted a health course for the university’s extension service using the on-campus National Public Radio station, the authors discussed the challenge of developing a for-credit course with listener appeal and also the community benefits of a large, diverse audience (1988). Thus, even today, radio as a medium for educational programming remains viable.

Though most “baby boomers” believe television was invented for them, in reality the development of television was somewhat before their time. By 1939, the University of Iowa “had broadcast almost 400 educational programs” (Moore & Kearsley, 1996, pp.
Early commercial stations offered some public service programming with college credits for certain offerings. Moore and Kearsley suggest that momentum provided by the Ford Foundation’s “hundreds of millions of dollars in grants for educational broadcasting” together with the 1962 federal Educational Television Facilities Act led to the demise of commercial educational service offerings as public educational stations and programs were being constructed (Moore & Kearsley, 1996, p. 28). Microwave, fixed service with a 20-mile radius, and cable television were all able to provide educational programming. By 1972, though the first cable exchange had occurred in 1952, the Federal Communications Commission required “all cable systems to provide an education channel” (Moore & Kearsley, 1996). Bagdikian implies that new legislation was necessary because of the erosion of the basic Communications Act of 1934 that had required programming in the public interest to resolve community issues (1996).

**Interactive Television Expansion**

Perednia and Allen report interactive use of television via microwave in 1959 between the state psychiatric hospital and an Omaha psychiatric institute for medical consultations (1995). All through the 1960s, other projects aimed to explore the potential of television programming: the State University of New York (SUNY), the British “university of the air,” the Midwest Program on Airborne Television Instruction broadcasting from DC-6 airplanes to schools, and university-corporate partnering in microwaving television engineering courses to work sites (Hall, 1996; Moore, & Kearsley, 1996).
Use of satellite technology to deliver real-time educational television followed nearly a decade after the first satellite communications launch, April 6, 1965, according to Moore and Kearsley (1996). Programs such as Learn/Alaska, Applications Technology Satellite (ATS), Pan-Pacific Education and Communication Experiments by Satellite (PEACESAT) through the University of Hawaii, and TI-IN Network of San Antonio Texas were leaders in satellite application for distance learning (Moore & Kearsley, 1996; Simonson et al., 2000). Delivering distance learning via satellite has been, until recently, too costly to sustain for most public organizations and institutions. A few privately sponsored efforts such as the TI-IN Network and Mayo Clinic locations in Rochester, Minnesota, Fort Lauderdale, Florida, and Scottsdale, Arizona, have continued broadcasting distance education programs.

Recent developments such as the Lewis Research Center's Advanced Communication Technology Satellite operating on Ka-band satellite provide a "full-duplex voice, data, and slow-scan video communications" (ACTS: Telemedicine via Satellite, 1997, p.1). This demonstration project, which includes among others the Mayo Clinic Foundation, St. Vincent's Hospital, Crow-Northern Cheyenne Hospital, and Exxon's Billings Refinery, provides "basic medical capability to any location" and "continuing medical education and training classes." NASA is partnering with "U.S. business and industry" in an effort to "plan and develop telemedicine technology transfer and commercialization initiatives using NASA-developed technologies" (NASA & NTCC Partner with Telemedicine Industry, 1997, p. 1). Additionally, Direct Broadcast Satellites are restarting satellite initiatives because recent innovations in satellite
programming (atmosphere connection) have made it less costly than installing fiber optic cable and high-speed telephone lines (land connections) (Moore & Kearsley, 1996).

As technology grappled with the drawbacks, that is, no two-way audio, of radio and television, developments in telephone and cable services sparked a flurry of excitement among educators, engineers, politicians, and businessmen. With the development of “improved compression technology,” “VLSI chip technology,” and “lower cost switched digital networks,” video conferencing came of age (Newton, 1999, pp. 854-855).

The 1980s and 1990s witnessed astronomical growth in the fiber optic video conferencing industry. Politicians, convinced that the new technologies would change the way Americans were educated, trained, and worked, supported hundreds of millions of dollars in federal grant allocations to “push technology” particularly to remote, rural locations. Industry, faced with competition from small and large corporations, scrambled to become the best provider in the industry.

Leaders in the video conferencing movement were makers of fiber optic and high-speed phone communications—two somewhat different approaches to deliver two-way audio and video. The telephone industry pushed connections and technology using existing telephone lines, with many using narrow bandwidth, which limited quality picture display. The cable industry pushed coaxial cable connections, though excellent for image display, were not as true to audio quality. Today fiber connections made of “very pure glass” that rapidly transmit “digital signals in the form of modulated light and travel on “strands of fiber for long distances” are being adopted throughout the United States by
all providers (Newton, 1999, p. 319). The proliferation of video-conferencing together with the Internet has led to yet other vehicles for distance education.

According to Evans and Nation (1996), as broadcast media matured, opening up new communication methods, educators quickly adopted each new innovation and applied these new distance education strategies to distance education. Educators, enthusiastic about new ways to deliver learning simply adapted traditional classroom approaches to the media at hand. Society’s response to human needs has prompted solutions before a carefully developed theory is constructed—yet, each invention or technology breakthrough then sets the stage to explain the principles, assumptions, and theory behind the delivery method.

Present methods of distance education delivery, occurring in almost any technological format imaginable, are described by educators and industry leaders with various categories or activities intended to facilitate one’s understanding of the method/media. Categories for distance education can be interactive and synchronous, illustrating the ability of the participants to interact with other participants. Examples include: audio, video, and computer/desktop conferencing. Noninteractive and asynchronous categories of distance education include: print, audio- and videotapes, and television and computer-based activities (Moore & Kearsley, 1996; Simonson et al., 2000; Thach & Murphy, 1995).
Dan Coldeway’s “framework” described in Simonson et al. illustrates a further approach to describing “ways in which education can be practiced”:

This framework, which considers the two variables of time and place, gives insight into different approaches to the practice of education and distance education. Combinations of time and place result in four approaches to education. The four are same-time, same-place education (ST-SP), different-time, same-place education (DT-SP), same-time, different-place education (ST-DP), and different-time, different-place education (DT-DP). (2000, p. 7)

Just as the rural settlement of the United States influenced the social and educational movements of the 19th century, the technology explosion of the 20th century has profoundly influenced modern educational delivery mediums. The 21st century promises further technological developments with even wider dissemination as teaching and learning on-line or via video-link media become the norm.

In 1997 the National Center for Education Statistics (NCES) reported “an estimated 25,730 distance education courses were offered in 1994-1995” from public four-year, public two-year, and private four-year institutions with 57% of these offered via two-way interactive video or video-link technology (Peterson’s, 1998, p. 7). As further referenced by Peterson (1998), in 1995 the NCES statistics indicate that 750,000 students had access to nearly 700 degree programs offered for completion via distance education. As the 21st century opens, even more programs will be available to even more students. Programs will range from (a) formal post-secondary course work leading to a college or university degree; (b) vocational or technical certifications; (c) apprenticeship programs; (d) work-related courses, continuing education, or training programs; (e) personal development programs; (f) English as a second language; (g) Adult Basic
Education (ABE), General Education Development (GED) preparation, or course to improve basic skills (Kim & Creighton, 2000). Futurists, educators, writers, and bureaucrats project significant trends in on-line learning endeavors with radical changes to college and university campuses by the year 2025 (Dunn, 2000; Riley, 2000).

Video link will likely fall behind course delivery via desktop computer technologies because of computer availability and cost advantages. However, the ability of video link to support larger audiences together with the number of systems in place may afford video link a brief reprieve for institutional continuing education and training.

Adult Learning Theories and Continuing Professional Education

As adult education has progressed, theories have developed to explain how adults acquire knowledge and apply knowledge. How the teacher/facilitator helps adults learn (andragogy) creates environments where adults are able to build on prior knowledge to “revise,” or establishes a new interpretation of an event or situation are still other theories of adult education (Darkenwald & Merriam, 1982; Mezirow, 1991). These theories and philosophies of adult education are useful because they reflect the benefit/importance of approaching adult learning by a method that differs from merely applying approaches used to teach children (pedagogy). Darkenwald and Merriam elegantly express the reason for separate approaches:

Educational practice reflects the difference between children, who are learning to be independent social beings, and adults, who have assumed independent decision-making roles. The main function of childhood education is to prepare young people to function as adults. For the most part, society, through the educational system, decides what knowledge, skills, and attitudes a child must
acquire to be equipped for participation in the adult world . . . Adult education, on the other hand, assumes that students are already functioning as adults in society. Thus, its mission is not preparatory so much as it is one of assistance—helping adults to realize their potential, make good decisions, and in general, better carry out the duties and responsibilities inherent in the adult role. (1982, p. 77)

For years, experts in the field of adult education have discussed and debated theories of adult education, waxed and waned as to whether theories of childhood education are truly distinct from approaches to adults, and agreed and sometimes disagreed about approaches to adult learners. Malcolm Knowles “popularized the term andragogy (‘helping adults learn’) in the 1970s.” The term had been in use for a while. First proposed to American educators by Lindeman in the 1920s, Davenport and Davenport reported in 1985 that “the term andragogy had been used first in 1883 by Kapp, a German” (cited in Deshler, 1989, p. 155).

Later writings of Knowles depict adults as expecting: (a) to understand the benefit of learning a particular body of information; (b) to be seen as self-directed; (c) to be seen as having their own distinct experience; (d) to learn as their “real-life situation” presents; (e) to be “problem-centered;” and (f) to be primarily motivated for “intrinsic motivators (the desire for increased self-esteem, quality of life, responsibility, job satisfaction, and the like)” (cited in Merriam & Brockett, 1997, p. 136). In contrast, Wadsworth, describing Piaget’s principles of constructivism as applied to childhood education, relates that:

Piaget’s constructivist theory makes clear that there are universals of development. There is a course to intellectual development, with reliable milestones and endpoints in the developmental sequence. As a part of adaptation to the world around them, children normally construct cognitive, affective, and
social knowledge and seem to arrive at the milestones of development in a seemingly natural way. (1996, p. 147)

Wadsworth observes that children learn (as do adults) at different rates and that it is the teacher who “constructs” learning goals and content in a manner appropriate for the child’s development, thus creating an environment in which the child can then “construct knowledge” (1996, pp. 148-149).

Merriam and Caffarella discuss the transformation regarding pedagogy and andragogy which is found in Knowles’s 1980 writings:

Knowles later position . . . is that pedagogy-andragogy represents a continuum ranging from teacher-directed to student-directed learning and that both approaches are appropriate with children and adults, depending on the situation. For example, an adult who knows little or nothing about a topic will be more dependent on the teacher for direction; at the other extreme, children who are naturally curious and who are “very self-directing in their learning outside of school . . . could also be more self-directed in school.” (1999, p. 13)

Andragogy now appears to be situation-specific and not unique to adults (Merriam & Caffarella, 1999).

Pratt proposes situational variables as “those conditions which prevail during learning which cannot be considered personal, psychological attributes of the learner or teacher.” In this view, Pratt observes “goals or content may not be negotiable due to the demands made by the sponsoring agency (as in health education certification)” (1988, p. 163). Pratt, discussing Shores’s work on learner preferences for instructional strategies, emphasizes learner need for program content becoming the priority:

In the field study, it was seen that learners may subject themselves to external standards and to highly structured learning experiences for a variety of purposes. Relatively self-directed in the choice, the learner becomes other-directed in the
method. Preparation for a certification exam was associated by learners with need for highly organized, content-focused presentations. (1988, p. 419)

There are diverse reasons for pursuit of adult education. One of the most compelling reasons all adults participate in programs is to add to their knowledge of specific, job-related information. The driving force may be an employer-mandated or a self-initiated desire to learn specific content. In these instances, the learner is unable to act on Knowles's self-directedness because of "situational variables." A description that Pratt uses to explain "conditions which prevail during learning which cannot be considered personal, psychological attributes of the learner or teacher" is present (1988, p. 162). Such situational variables or "situational factors," as referred to by Conti (1978, p. 2) and reported by Pratt (1988, p. 162), can severely limit any opportunities for the adult learner to collaborate with the teacher as a "co-inquirer," another factor Knowles (1980, p. 48) believes is essential in teaching adults. Accordingly, teachers under such circumstances who facilitate structured learning content such as continuing education or presentation of specific content (e.g., agency standards, new equipment set-up, or interpretation of medical criteria) have an opportunity to balance teaching-learner approaches. Pratt suggests that learners "come to educational situations with varying degrees of prior knowledge, experience and commitment, and self-confidence" (1988, p. 163). The teacher, therefore, pre-supposes certain levels of knowledge and builds an environment supportive of the learners' levels of skill. In health care, a continuing education offering described as Advanced EKG Interpretation would indicate to health care professionals that the learner already knows basic heart rhythm patterns and
standards of care. Returning to Pratt’s assumptions, class goals would be highly structured, the level of direction and support would most likely vary within Pratt’s pedagogical and andragogical relationships depending on the individual learners need for direction. In such situations, the teacher will be able to adjust the pace or level of detail based on learners’ needs. Seminar formats with question and answer sessions or clinical “hands-on” activities would provide opportunities for the teacher to collaborate or act as a catalyst supporting andragogical principles. Other portions of the course content may require pedagogical approaches where the teacher presents detailed definitions and criteria that the learner must precisely apply to the heart rhythm monitoring record (Knowles, 1980; Pratt, 1988). Pratt concludes, urging teachers:

Whether learners are dependent or autonomous, the teacher must not do for learners what they can do for themselves. In this delicate balance lies the key to effective teacher-learner relationships, for it is here that the essence of good teaching embraces both andragogy and pedagogy. (1988, p. 170)

Livneh and Knowles emphasize Dubin’s recognition of the ever-accelerating change in the health professions. Livneh seeks to understand the characteristics of lifelong learners in human service professions, including nursing, within the scope of the study design. Important factors related to lifelong learning include individual reading ability and interest in reading together with the ability to self-learn. Together, these abilities along with professional organization and societal impetus, Livneh proposed would “assist professionals in planning their future learning” (1988, p. 158; Knowles, 1980, p. 297).
Knowles, also acknowledging the importance and necessity for continuing education, reviews a “pilot project for physicians at the University of Southern California” and nursing continuing education (1984, pp. 297-298). Knowles believes each of these continuing education experiences illustrates the andragogical model particularly with respect to the self-directedness of the participants: The physicians demonstrate self-directedness through inclusion or exclusion of journal articles in their journal reading, similarly nurses are depicted as participating in self-directed learning experiences and learning contracts. Knowles maintains such self-directed initiatives make any differences between pedagogical and andragogical education moot. Knowles emphasizes entering “into those taught-learning situations in a searching, probing frame of mind” and “exploit[ing] them as resources for learning without losing . . . self-directedness” (1984, p. 301). To be viable in the information society, Dunn (2000), in predicting higher education trends, believes that the typical adult will need to take at least 30 semester credits every ten years.

Regardless of the specific continuing education model used, continuing education has always been and will continue to be a vital component of adult quests for knowledge. Perhaps the major differences relate to today’s access, technology, or tools. Now farmers seeking new ways to control weeds or EMTs posting questions can each look to the Internet to find information on the spot or download additional information to study later. It is doubtful continuing education not respectful of adult needs and approaches will survive in the fast-paced multifaceted learning processes of today.
Training has often been disregarded by leading adult educators including Everette Dean Martin, Myles Horton, and K. H. Lawson and yet “training represents the vast majority of learning activities participated in by adults,” Galusha argues (1998, p. 3). Throughout the position paper, Galusha compares adult education and training noting both enhance one’s life work. Those critics, Galusha asserts, who believe training is pedagogical in nature and therefore not applicable to adult education, overlook the common purposes of learner respect or instruction modalities. Galusha maintains the “philosophical foundations of adult educators and training overlap and are merging” and both fields may be better served by “combining the strengths of both to create a new definition of adult education” (pp. 6, 14).

Instrumental learning, developing a skill or strategic assessment and communicative learning, to know or explain our beliefs and feelings, are learning domains described by Habermas. These concepts clarified by Mezirow are essential to development as adult learners who can then process and solve problems (1991). Experience, discussion, and reflection are all building blocks in adult development. Such learning experiences may transform one’s original conviction into a larger perspective. This transformation, as Mezirow suggests, moves us “toward a fuller and more dependable understanding of the meaning of our mutual experience” (1991, p. 224).

Distance Learning Theories

Distance education and learning literature refer to theoretical frameworks and explanations, yet some educators still believe there is no single construct or “accepted
theory” that would fully describe the function and foundation of distance education. Simonson et al. (2000) acknowledge the need for theory in their recent book, Teaching and Learning at a Distance, reporting how theory of distance education in the United States “has matured to the point where indigenous definitions and theories have begun to emerge” (p. 26). Yet, these same authors acknowledge the difficulty in establishing theory when so many aspects central to distance education change daily: “technology, society, economics, politics, and theories of distance education will continue to be contested” (p. 43).

If distance education theories represent all that is known about this vehicle for facilitating learning, and admittedly distance education has been practiced for more than a century, it may not be surprising to see the theories traverse the decades changing with the impact of new technologies. At least a dozen theories now describe distance education.

One of the earliest descriptions was presented by Holmberg, who has written extensively about distance education. He emphasized that distance learning is actually related to “general theories of teaching and learning” yet “some learning theories” were “more compatible with distance education than others” (1989, p. 159). Holmberg, attributed by Simonson et al. with the Theory of Interaction and Communication, described the learner-teacher dialogue as the critical aspect of distance education. The learner should carry on a conversation with the teacher. Simonson et al. describe Holmberg’s views in his recent writings:
Holmberg suggested that distance education has been characterized by a trial and error approach with little consideration being given to a theoretical basis for decision making. He suggested that the theoretical underpinnings of distance education are fragile. Most efforts in this field have been practical or mechanical and have concentrated on the logistics of the enterprise. (2000, p. 28)

In earlier writings, Holmberg emphasized media’s supplemental use for learning and described several disappointing experiences with radio, television, and print where students indicated preferences for print material when radio or television offered no real advantage or even delayed students who could quickly read the material. While Holmberg notes these studies may not apply to all groups, he suggests reserving radio and television for demonstrations that would expand written material (1989).

In 1995, Holmberg “broadened” his original premise of interaction and communication to describe why teacher/student interaction was so vital. Interaction and communication make distance learning content relevant, encourage learning pleasure, and motivate the student (Moore & Kearsley, 1996; Simonson et al., 2000).

Other early distance education theories were developed in the 1960s by German educators at the University of Tübingen. The most well-known theorist, Otto Peters, analyzed a new form of teaching in an article in 1965. By 1967, he had described the Theory of Industrialization, which argues that industrial methods of efficiency, should be applied to distance education to ensure success. Such industrial methods included labor division, mechanization, mass production, and scientific control methods. This approach, Peters believed, would allow broad distribution (Moore & Kearsely, 1996).

Language and geographic factors hampered early distribution of Otto Peters’ theory, which was not disseminated in English until 1983. Fortunately, Charles
Wedemeyer, a professor at the University of Wisconsin, became familiar with Peters' work through his communication with Rebel, a colleague at the University of Tübingen. Wedemeyer, author of the 1971 Theory of Independent Study, focused on the correspondence learner as in control and directive because of his independence in space and time.

The theories of independent study wherein the student is primarily responsible for his or her learning and the distance or independence of the student as proposed by Charles Wedemeyer and Michael Moore, a colleague of Wedemeyer, are detailed by Simonson et al. To foster independent study, a preferred term according to Wedemeyer for distance education, Wedemeyer encourages appropriate multimedia use, student-paced responsibility for learning and any time-any place student participation. Simonson et al. observe that Wedemeyer believed "development of the relationship between student and teacher" was "key to the success of distance education" (2000, pp. 28-29).

Michael Moore is described by Simonson et al. (2000) as blending precepts of both Peters and Wedemeyer to establish his Theory of Independent Study in which Moore proposes learner independence from the teacher is beneficial. In 1972, Moore further proposed that learner autonomy or responsibility for making his or her own decisions was an important dimension of the Independent Study theory. Those learners who are very autonomous are comfortable with greater degrees of independence and distance regarding their own learning. By 1980, Moore had introduced the concept that is presently referred to as the theory of Transactional Distance (as described by Moore & Kearsley, 1996; Saba & Shearer, 1994).
The critical aspect of distance education, according to Moore is the transaction that requires special planning because of the separation of the teachers and learners. Transactional distance learning is intended to clarify that a pedagogic effect rather than a geographic factor occurs. Rumble is attributed with describing all face-to-face educational endeavors as having some transactional effect (Moore & Kearsly, 1996). Distance education, however, must be presumed to have a more significant transactional effect that requires special teaching behavior. By paying special attention to course dialogue (interactions between the teacher and the learner) and structure (course design) as well as “environmental factors” (class size, technology), the transactional distance can be optimized.

An organization’s educational philosophy may direct the degree of structure and learner autonomy (higher or lower). In the case of a high degree of structure, behaviorist control of the learning environment would lessen learner autonomy, according to Moore and Kearsely (1996) who parallels such tight structure to the Industrial model.

In 1988, Saba seeking to “empirically verify the concepts of transactional distance, structure and dialog,” “proposed a system dynamics model to represent the relationship among these variables” (Saba & Shearer, 1994, pp. 36-37). Using system dynamics modeling (used in industrial and social systems modeling), Saba and Shearer were able to verify the theoretical concepts of transactional distance (1994). Their research applied discourse analysis to measure the variance of transactional distance as compared to structure (the program’s ability to respond to individual learner needs) and dialog (learner and instructor interaction). The “theory-driven model” of discourse
analysis was utilized to look at both active (i.e., learner requests for clarification) and passive (i.e., yes, no) learner involvement. Instructor control was also measured based on direct and indirect responses to the student. Saba and Shearer found that transactional distance varied according to the rates of dialog (interaction) and structure (the program’s ability to respond to individual need) (1994).

In 1980, Desmond Keegan, founder of the *Australian Journal of Distance Education* who supported the distance education definitions of Holmberg, Peters, Moore, and the July 1971 Law of France regulating distance education in that country, offered his own additions to the theories of distance education, including a controversial suggestion that the absence of a learning group is an element related solely to distance education (Moore & Kearsley, 1996). Other educators such as Randy Garrison, Doug Shale and Myra Baynton disagreed, asserting that Keegan was really speaking of print-based distance study. By 1995, Keegan suggested that electronic linkage of students and instructor “creates a virtual classroom.” Simonson et al. suggest that this environment has led to the recent development of the Equivalency theory: “This theory is based on the emerging definition of distance education as formal, institutionally based education that takes place using two-way interactive telecommunication systems” (2000, p. 36).

Simonson, in 1996, had postulated that learners should not have to “compensate” for “instructional experiences”: “Those developing distance educational systems should strive to make equivalent the learning experience of all students no matter how they are linked to the resources or instruction they require” (Simonson, et al., 2000, p. 36).
In contrast to Moore and Kearsely (1996), Simonson, et al. (2000), Holmberg (1995), and Hobbs and Christianson (1997) urge the I-TV (Interactive Television) instructor to use technology to its full potential, believing students will be able to “build knowledge” as a result of instructor flexibility with technology. Pertinent learning theories from Hobbs and Christianson’s perspective should include Merrill’s Component Display Theory wherein content is integrated by the student and return demonstrations are achieved using I-TV.

Keller, as cited by Hobbs and Christianson (1997), proposes motivation is important within the I-TV milieu. Wagner and McCombs’ findings of greater utilization of motivation concepts by distance educators as compared with “instructors in traditional classrooms” are also reported (p. 186). They maintain distance educators are inventive in their strategies to provide learner involvement in outcomes and the total learning experience. Hobbs and Christianson report this excerpt from Wagner and McCombs (1994):

All learners benefit from instruction in which they are motivated, feel that they exercise control over their learning experience, are respected and are accountable for their own learning outcomes. However, because there is the perception that these variables tend to distinguish distance education learning experiences from traditional learning experiences, there appears to be a greater willingness on the part of distance educators to consider employing instruction designs, models and techniques to accommodate these variables than on the part of traditional educators. (1997, pp. 186-187)

The conclusions of Wagner and McCombs illustrate the benefit of applying the factors that Seaman and Fellenz suggested should influence the selection of teaching strategies: the “learner, teacher, organization, and content” all of which should be
balanced within the contexts of “needs and preferences” (Seaman & Fellenz, 1989, p. 7). For example, learners with visual learning styles participating in a video link distance learning program may gain more from multimedia demonstrations of art works or chemistry experiments than by merely observing a lecture or “talking head” from a distant location to the learning site.

Constructivist theory, supported also by Duffy and Jonassen (1991), Bednar et al. (1991), Kemp and Smellie (1994), and Hobbs and Christianson (1997), reminds instructors to facilitate knowledge construction from classroom experiences as an active, realistic process for the students. Saba and Shearer, mentioned previously, also note the importance of the Constructivist Theory of Learning in their article “Verifying Key Theoretical Concepts.” Saba notes “meaning, in part is constructed as a result of social interaction” (Saba & Shearer, 1994, p. 40). Saba’s use of system dynamic modeling looks at learner and instructor control of the learning event through assessing interactions and speech. Mathematical equation interrelationships are established from discourse analysis and then simulated based on the model. Saba believes more “empirical” research is needed for distance education (Saba & Shearer, 1994, pp. 36-57).

As the 21st century unfolds, Simonson et al. (2000) have noted a renewed interest in Otto Peters’s theory of Industrialization. Whether the industrial “framework” of Henry Ford’s production is a fit for distance education is now being debated by distance educators. This framework has been studied by Badham and Mathews since 1989, and is now described as Fordism, Neo-Fordism and Post-Fordism. Campion remarks:
The Fordist strategy for distance education suggested a fully centralized, single-mode, national distance education provider, gaining greater economies of scale by offering courses to a mass market, thereby justifying a greater investment in more expensive course materials . . . The neo-Fordist strategy extends the Fordist system by allowing much higher levels of flexibility and diversity, and by combining low volumes with high levels of product and process innovation . . . The post-Fordist strategy is characterized by high levels of all three variables: product innovation, process variability, and labor responsibility. It is opposed to neo-Fordism and to Fordism, dispensing with a division of labor and rigid managerial control and deliberately fostering a skilled and responsible workforce. (2000, pp. 38-39)

Simonson proposes that distance education was influenced by the Fordist paradigm because production and economies of scale were a focus of the 20th-century business practices. Critics find the Fordist paradigm, “based in behaviorism learning theory in which knowledge is delivered to the learner,” to be inflexible for current demands for distance education. The high level of instructor autonomy and control in post-Fordist strategy provides opportunities for flexible curriculum depending on learner needs. The post-Fordist strategy supports learner “experimentation, questioning, and problem solving,” which Renner (as cited in Simonson) argues directly relates post-Fordism with constructivism. The debate about these strategies/theories and in particular between Fordism and post-Fordism will, Simonson believes, only grow stronger because it entails so many dynamics central to distance education (Simonson et al., 2000, pp. 38-43).

Throughout this overview of distance education and learning theories, numerous approaches, theories, and techniques have been presented. It may be unrealistic to expect a single theory to represent learning or a single theory to represent distance education to educators and countries around the world.
Uses of Distance Learning and Training Among Health Professionals

While telephone consultations and collaboration about patient care, status, or emergencies are common, health professional training has had a more recent entrance into the distance learning scene. Nebraska made early use of this training via television in 1959 (Perednia & Allen, 1995). Today, diabetic retinopathy screening, physician consultation, and physician continuing education conferencing are some of the most common uses of video link for health care professionals. Over the past 10 to 15 years, health care professionals have used distance education to provide: (a) specialized certification training for rural areas to provide Advanced Cardiac Life Support or Basic Life Support (Moore & Coker, 1992); (b) continuing education and training for physicians and other rural health professionals, that is, nursing home administrators, nurses, home health administrators, dietitians, health educators (Clark, 1993; Crandall & Coggan, 1994; Dirksen, Hoeksel, & Holloway, 1993; Donckers & Harris, 1992; Fry, Baer, & Cornett, 1976; Graham & Masters, 1982; Hauf & Scott, 1985; Havice & Knowles, 1995; Heidenrieter, 1995; Keough, 1975; Sanders, Brucker, & Miller, 1995); (c) training for specialized populations (geriatrics) has been an important resource for Skilled Nursing Centers (REACH Telemedicine Network, 1994; Wood, Teitelman, Parham, & Saidman, 1988); (d) educational programs for contagious diseases (AIDS, Respiratory Syncitial Virus) provide important contributions to video link education (Bond & Friebaum, 1993; Peterson, 1996); (e) video link and satellite-based formal college or university course work for credits in nursing, and health care administration are
increasingly common (Armstrong & Sherwood 1994; Douglas & Fotos 1989; Fotos, Douglas, & Wilson, 1994; Fulmer, Hazzard, Jones, & Keene 1992); (f) health education and health promotional programs contribute to community health (Hale & Hollander, 1988).

Distance learning and training for health care professionals provide opportunities that otherwise often would not be available raising not only the professionals abilities, but also allowing the professional the opportunity to apply the knowledge gained for patients and health care situations arising within the community. It is not uncommon to read or hear of a patient whose life was improved or saved because of a rural providers access to vital, new, life-changing information. While not all outcomes are as dramatic, the removal of isolation barriers and opportunity for professionals to have support can be just as important.

**Future of Distance Education**

The end of an era is predicted for higher education as we enter the 21st century. No longer will the campus model be the norm, instead new ground will be plowed blending technology, telecommunications, and new learner expectations. Paving the way, the Western Governors’ University (WGU) was created in 1996 by 10 western governors and comprised of 15 states (Alaska, Arizona, Colorado, Hawaii, Idaho, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, Utah, Washington, and Wyoming) and one territory (Guam). Today WGU consists of 18 western states, two Pacific-flag territories, one commonwealth, corporations, and higher education
institutions all striving to provide course delivery via distance learning and "avoid duplication." (WGU, 2001) In November 2000, WGU received "Candidate for Accreditation" status by the Inter-Regional Accrediting Committee (IRAC). Though not thoroughly accredited as yet, such progress illustrates the continued unveiling of new vehicles for learning. The post-World War II era of on-campus life and degree achievement is giving way to on-line course work, certifications, and "program councils of faculty and practitioners" (WGU, 2000). "Competency-Based Degrees" will be touted and partnerships with business, government, and education will be common. Military, self-instruction, and other training will count toward certification (Connick, 1997; Dunn, 2000; WGU, 2000). On February 18, 2001, "60 Minutes" correspondent Lesley Stahl described the ability of learner degree achievement anywhere, anytime through the "unparalleled convenience and flexibility of attending classes from your personal computer." Learners can invest in the University of Phoenix both for degree attainment and as an investment on the New York Stock Exchange, Stahl reports (Hewitt, 2001; University of Phoenix Online, 2001).

Evans and Nation note distance education provides "time-flexible learning," providing opportunities for students with scheduling difficulties to participate as readily as students with access issues (1996, p. 4). Program length issues, as illustrated in nursing curriculums of two, three, and four years, will be overshadowed by new program paradigms such as assessment councils made up of faculty and practitioners bringing new venues for learning (Connick, 1997).
Already “registered nurses in Hong Kong are . . . able to obtain a nursing degree in Australia by a short period of study in Hong Kong and then only eight months of on-campus tuition in Australia” (Castro & Wong, 1996, p. 125). Within the United States, registered nurses can access dozens of options to complete a baccalaureate nursing degree via Internet without ever attending the higher education campus. Similarly, Licensed Practical Nurses (LPNs) are able to achieve an Associate Degree in Nursing from organizations like Regents College, “America’s First Virtual University,” making them eligible for exams leading to a registered nursing license (Regent’s College, West Medical Training Center, n.d.). Faced with another nursing shortage and millions of aging Americans it may only be a matter of time until virtual university and hospital partnerships forge new ways for learners to demonstrate proficiency in assessment and other important technical skills. Proficiency in these hands-on skills is the primary reason (another influencing factor is traditional university leadership which is understandably reluctant) nursing degrees are not totally achievable via the Internet.

However quickly technology is changing the way we live and work, for many parts of the world distance education may still involve older forms of distance communication such as print material or radio. Delivery to remote locations is challenged by technology or service failures, for example, mail delivery or lack of batteries (Arabehaus & Kenworthy, 1996). Evans and Nation emphasize, “The Internet might embrace the globe, but many of the world’s places and people remain untouched” (1996, p. 2).
Planning Education Programs

In the foreword of *Opening Education*, Ross Paul urges that distance education not be seen as only another tool for lifelong learning, but implores those establishing distance education programs to “start with the learning needs of the students, not, as is so often the case, the fancy new technology itself” (1996, p. xi). For Knowles, to be an andragogic-approach, program planning must always start with the “adult’s interests, even though the end objective may be to meet their (an institution’s and society’s) ‘real’ needs” (1980, p. 82).

Caffarella (1994) acknowledges that planning and evaluation of educational programs for adult learners is “both an organized and a haphazard endeavor” (p. 1). To address the “nonlinear” process, planners must accommodate when planning adult learning programs, Caffarella has developed an “Interactive model of program planning for adults” (p. 17). This Interactive model accommodates a planning process that must prioritize some interventions ahead of others, such as obtaining the room location before lining up the speakers, and yet still ensure program outcomes that will help participants “apply what they have learned” (p. 20).

Based on the model of Dick and Carey (1996) and the systems view of Moore and Kearsley (1996), Simonson et al. suggest the interaction of “the learners, the content, the method and materials, and the environment including technology” are the components that must be carefully attended to in order to create “the type of learning experience necessary for student learning” (2000, pp. 114-115). Cyrs believes the distinctions
between “teleteaching” and “traditional learning” together with how the “capabilities, advantages, and disadvantages of the delivery system affect the course plan” are essential to the process (1997, p.16).

Preparing for the unexpected (e.g., technology failure or partial failure such as no audio) is a shared element of all distance learning and program planning models (Caffarella, 1994; Simonson, 1997). Learner-centered objectives, instructional strategies, and materials and evaluation are also vital for planning any distance learning program. Establishing learner-centered objectives requires knowledge of learner interests and experiences that can be obtained from various sources such as the learners themselves or pre-surveys. Learner objectives as well as the organization’s purpose in planning the program should not be overlooked. Ostendorf suggests three other considerations “not always found in traditional classroom teaching: learner-centered design, learner-centered delivery skills, and direct learner participation” (1997, p. 53). Meighan, in his discussion of home-based education, reflects on the impossibility of meeting the learning styles of all when faced with a traditional classroom and contrasts this with home schooling where “families rather take it for granted that learning styles differ and vary the learning situations accordingly” (1996, p. 60).

Research, however, is demonstrating that even accommodating for preferred-learner styles can be achieved with distance learning. Reynolds and Beeman propose matching teaching strategies and students’ learning style will facilitate the nurse educator’s teaching. Confirming the findings of Brooks and others, they determined “eye movement cues” could “assist the nurse educator to more effectively adapt teaching
strategies to match students’ preferred sensory modes for processing information” (1999, p. 1). For example, learner eyes looking at the ceiling, visual; looking at the floor, kinesthetic; and learner hands touching hair or ears, auditory (1999).

Teacher competencies studied by Cyrs and Smith (1988, 1990), Chute, Balthazan, and Posten (1988), and Thach (1994) and reported by Cyrs to be important elements to ensure successful teaching are highlighted: (1) course planning and organization including copyright issues; (2) verbal and nonverbal presentation skills with particular attention to managing discussion among field sites; (3) collaborative teamwork consisting of the students and the teacher; (4) questioning strategies for all intellectual levels; (5) subject matter expertise and supports for learning (such as visuals); (6) involving students and coordinating their activities at field sites a key difference between teleteaching and classroom instruction; (7) basic learning theory helps instructors adapt to learner differences; (8) knowledge of the distance learning field broadens the teaching possibilities; (9) design of study guides correlated with the television screen enhances instructor delivery; (10) graphic design and visual thinking will communicate instructors ideas (1997).

Hall emphasizes the need for faculty skill in utilizing distance education technology noting that “no graduate universities have ever taught these skills to the current faculties of the University” (1996, p. 19). Distance teaching and learning, an environment of its own, is beginning to be treated as a field of enormous promise, however, the basic elements of a well-conceived and detailed planning process will continue to benefit learners, teachers, and organizations.
James Hall believes "a great need exists for information on the effectiveness and related costs of distance or connected learning" (1996, p. 19). That being said, how should one evaluate effectiveness and from whose perspective? Simonson acknowledges that traditional education program models "have concentrated on the empirical and quantitative procedures" and reports recent trends in distance education include qualitative evaluation models with "collection of many non-numerical types of information" and incorporation of "more naturalistic methodologies with holistic perspectives" (1997, pp. 87-88.)

Reporting on Woodley and Kirkwood's six categories of evaluation information which are both qualitative and quantitative: (a) measures of activity, (b) measures of efficiency, (c) measures of outcomes, (d) measures of program aims, (e) measures of policy, and (f) measures of organizations, Simonson et al. propose only appropriate evaluation measures be undertaken as not all would be needed in every instance (1997). The second method reported by Simonson et al. (2000) is one that the Iowa Distance Education Alliance uses, Iowa's Star Schools Project (AEIOU). The AEIOU approach is a combination of qualitative and quantitative information proposed in a five-component framework: (1) Accountability: Did the project planners do what they said they were going to do? (2) Effectiveness: How well done was the project? (3) Impact: Did the project make a difference? (4) Organizational context: What structures, policies, or events in the organization or environment helped or hindered the project in accomplishing its
goals? (5) Unanticipated consequences: What changes of importance happened as a result of the project that were not expected?

Shomaker and Fairbanks (1997), in evaluating an RN-to-BSN distance education program via satellite for nurses in rural health care, asked four questions of a sample of off-campus graduates: (1) Could the program sustain itself (i.e., would students enroll and would they graduate)? (2) What would be the demographic performance profile of the ITV student compared to the on-campus students? (3) Would students like an ITV program? Would it increase their skills? (4) In what ways would this program serve the needs of rural health care (e.g., would nurses continue to leave the rural areas for jobs in the city, as RNs did who came to Albuquerque for their education)? Shomaker and Fairbanks (1997) amplified these responses with supervisor interviews and demographic and grade performance profiles.

Acknowledging distance education evaluation requires its own “processes and practices.” Dr. Diane Billings, in a guest editorial for the Journal of Nursing Education, proposes “a starter list of principles to guide assessment of DE in nursing programs” to ensure distance education assessment obtains “valuable information for improving DE in nursing” (1999, pp. 292-293). The “starter list of principles” proposed urges evaluators to remember distance education interrelationships are complex and should include a “comprehensive view of the program” (p. 292). Billings further reminds distance educators that “assessment of distance education must be ongoing as use of technology and teaching and learning practices evolve over time . . . thus assessment of DE should occur over time and reflect improvement . . . and be shared with stakeholders” (p. 292).
Almost everyone would agree evaluation is an important tool to gain insight into how a particular program is faring. Distance education provides ample opportunity to assess programs from almost any angle.

Reporting on a pilot distance education project for today’s nurses and midwives, Emery acknowledged the need for “continual lifelong learning” to ensure “patient care of the highest conceivable quality.” This education for nurses and midwives at a distance was conducted throughout the European Union (EU) telematics AIM program and highlighted the importance of managing the educational process to ensure that a “high quality learning” experience occurs when using technology (1996, pp. 40, 43). One of the difficulties the pilot project experienced was broadcast and sound quality. Similarly, a video link distance education program targeted for physicians on March 27, 2000, over the REACH Montana video link network was abruptly terminated during the last 15 minutes of the broadcast due to a power failure during remodeling at the local hospital. For decades, students have accommodated transient difficulties such as the time delay occurring when a slide projector bulb burns out. Providers of distance education have even greater challenges to consider and ameliorate.

Summary

Over the past decade a number of theories have been advanced for distance learning. Each theory has brought increased understanding for practitioners utilizing the various forms of distance learning and its multiple delivery vehicles. The literature review highlights several key concepts related to adult education, health professional
training and distance education in an attempt to set the stage for the considerations related to this study. No single theory is investigated in this study.

Commending the leadership role of Evans and Nation, Ross Paul thanked them “for ensuring that, in promoting and developing distance education we never lose our critical perspective.” All providers and learners participating in distance education need to continuously ask themselves, “Is this a worthwhile experience?” If not, they need to take charge to ensure change (1996, p. xi).
CHAPTER 3

METHODOLOGY

Introduction

With shrinking budgets yet increasing education and training costs, numerous organizations have implemented new technology delivery systems in an effort to meet their needs. The effectiveness of these new technologies to deliver education and training will ultimately determine their longevity. Perceptions of health care professionals involved in a video link distance learning experience may contribute to organizational planning and achievement of effective programming.

Description of the Methodology

Acknowledgment by Merriam and Simpson (2000, p. 61) of the difficulty of “arrange[ing] subjects into experiments for manipulation or treatment to be artificial and often not possible” has led to the use of descriptive research when the observer wants to “simply draw attention to the degree two events or phenomena are related.” As Gay acknowledges, however, descriptive research is more complicated than “just asking questions and reporting answers” (1996, p. 250). Glass and Hopkins observe that “descriptive statistics serves as a tool for describing and summarizing, and reducing to manageable form the properties of an otherwise unwieldy mass of data.” They further propose that this descriptive data may be either quantitative (“measures of height or test
scores”) or qualitative (“categorical characteristics, such as sex, college major, or personality type”) (1996, p. 2). Although it would appear simple to describe the methodology used in this study, some confusion exists between methodologies. As Guba and Lincoln explain in Fourth Generation Evaluation, the term’s “naturalistic evaluation” . . . and “qualitative evaluation” . . . are seemingly equated by some evaluators (1989, p. 158-159). Further and not embraced by all, Guba and Lincoln “now prefer” to call naturalistic evaluation . . . constructivist (p. 158). In recent years, evaluation theorists have proposed a number of distinctions between evaluation approaches. For this case study, Creswell’s definition of qualitative research best describes the methodology used:

Qualitative research is an inquiry process of understanding based on distinct methodological traditions of inquiry that explore a social or human problem. The researcher builds a complex, holistic picture, analyzes words, reports detailed views of informants, and conducts the study in a natural setting. (Creswell, 1998, p. 15)

This naturalistic, or as Creswell termed it qualitative case study investigated and described perceptions of health care professionals about a video link distance learning experience. The study of this education/training event included two days of observation and videotaping at two of the nine video link sites supplemented with field notes and diagrams, interviews and a survey questionnaire (hereafter referred to as the 1999 Initial Questionnaire). The 1999 Initial Questionnaire included both open and closed questions. As noted by several authors, a naturalistic qualitative study seeks to understand the situation as completely as possible prompting multiple data collection and observation strategies (Creswell, 1998; Gay, 1996, Guba, 1978; Lincoln & Guba, 1985; Owen, 1982).
Following review of the 1999 initial data (field notes, transcribed content of 8mm observation tapes, the 1999 Initial Questionnaire and on-site interviews), an additional open-ended questionnaire (hereafter referred to as the 2000 Follow-up Questionnaire) was mailed to a randomly selected third (35 of 105) of the licensed and certified long-term care facilities invited to the original educational session. The intent of this methodology was triangulation of data as recommended by Lincoln and Guba (1985, p. 283), that is, "to validate each [piece of information] ... against at least one other source (for example, a second interview) and/or a second method" (Creswell, 1998; Gay, 1996).

Context of the Case

Montana's Department of Public Health and Human Services (DPHHS) has the responsibility to improve and protect the health and well-being of all Montanans. Within DPHHS, the Quality Assurance Division oversees numerous state and federal programs. One of these programs, the Certification Bureau, "is responsible for the certification of health care facilities and CLIA laboratories enrolled in the Medicare and Medicaid programs" (Montana Department of Public Health and Human Services, 2001). The Certification Bureau's responsibilities include acute care and long-term care facility assessment of compliance to federal and state guidelines. Montana long-term care facilities numbered 105 in fall 1999 and spring 2000.

These facilities' compliance is assessed most often through on-site surveys during which the facility must demonstrate strict adherence to all federal and state statutes and guidelines. Consumer complaints can prompt unannounced surveys which can be
particularly stressful for health care providers; however, essential to conduct. Typically, whether the survey is planned or unannounced, surveyors investigate: (1) the facility’s overall living conditions and health of the residents (because the facility has become the individual’s home, the description of the individual referred to as a “resident” is mandated); (2) general quality indicators (incontinence and ulcer prevalence, falls, infections, medication errors); (3) sentinel events (unanticipated resident occurrences such as accidents or serious errors which should rarely happen); (4) the overall physical functioning of the residents (bedfast residents, residents who are no longer able to perform certain activities of daily living such as dressing, toileting, or eating); (5) the overall quality of life for the residents (prevalence of daily restraints to any limb, trunk, or chair or the prevalence of little or no activity); and (6) antipsychotic, antianxiety, or hypnotic use (residents receiving psychotropic medications, particularly those with cognitive impairment or behavior problems, excluding those with Huntington’s Tourette’s, psychotic disorders, or hallucinations) (Montana Department of Public Health and Human Services, 1999).

Certification Bureau surveyors live throughout Montana though the greatest number are assigned to Helena. Each facility is surveyed yearly. During the facility’s survey, one-to-one assistance is provided by the surveyor(s) to organization, in addition to the survey/certification process. Surveyors crisscross the state carrying out their survey responsibilities and providing new, updated, and resident care information which fosters “quality health care environment[s]” (Sloane & Sloane, 1992, p. 227). In effect, a surveyor is both a policeman and a teacher.
Understandably, provision of information to long-term care facilities on a site-by-site basis, while rich in detail for those involved, is less effective from an efficiency perspective than a statewide education and training seminar. Additionally a training seminar ensures that all facilities are presented with identical information. As the Certification Bureau assessed strategies to provide the facilities with the Health Care Financing Administration (HCFA) quality indicator and survey process changes, they considered the benefits of reaching Montana facilities through the State of Montana Education Telecommunications NETwork MetNet Interactive Video System. Working with Montana’s Information Services Division, the plan to use MetNet for the education and training seminar was scheduled.

Population and Sample of Data

MetNet video location capacity was assessed as the Certification Bureau planned the training sessions. MetNet statewide locations had a maximum capacity of 382 attendees. Helena, considered the primary site for the broadcast had a capacity of 150 persons in the Department of Public Health and Human Services auditorium. Other site capacities were: (1) Billings, 45; (2) Miles City, 40; (3) Havre, 18; (4) Bozeman, 30; (5) Great Falls, 24; (6) Missoula, 45; and (7) Kalispell, 30. The Certification Bureau, aware of MetNet’s Top Ten Tips (#5 of which states “Observe and abide by the room headcount limitations at each site; DO NOT OVERLOAD the conference rooms!”), carefully adhered to the location capacities (Montana Information Services Division, 1997). Capacity for each location was published in the Certification Bureau’s brochure
announcement outlining the education program for long-term care facilities. The Certification Bureau MetNet seminar attendees who wished to participate were the sample for this study.

Lincoln and Guba point out that naturalistic sampling is “very different from conventional sampling. It is based on informational, not statistical, considerations. Its purpose is to maximize information, not facilitate generalization.” (Lincoln & Guba, 1985, p. 202). The study sample was drawn from those willing to complete the 1999 Initial Questionnaire distributed to the entire population (187 health care professionals of the 244 registrants returned surveys) participating in the video link training experience. While the attending population is representative of professionals working in long-term care, those who disliked completion of questionnaires may have excluded themselves from the study.

All participants were told the purpose of the study during the opening remarks of each day’s continuing education experience. At the July, 1999, training seminar, participants were invited by the Certification Bureau personnel to complete the evaluation forms distributed in the training manual as well as at the registration desk. Participation was voluntary. Participants were aware that the purpose of the survey was to ultimately improve video link programming and assess their input as to the value of this technology for future Certification Bureau educational offerings. All individual responses were considered confidential, were not available for public review and only the researcher had access to identifiable data.
Data Instruments

In addition to their survey responsibilities for the State of Montana to ensure compliance with state and federal statutes for health care facilities, the Quality Assurance Certification Bureau of the DPHHS provides education and training for their stakeholders. Bureau professionals represent a number of backgrounds including nursing, medical records, dietary, recreational therapy, and social services. In July, 1999, the Certification Bureau planned a training session entitled “Survey Agency Training on HCFA Quality Indicators/Survey Process Changes and Best Practice Guidelines” via MetNet. The Certification Bureau’s goal was to present new information, review important quality mandates and reemphasize best practice guidelines designed to ensure safe and effective resident care for health care professionals at long-term care facilities. Both the State Telecommunications Policy and Development Manager and the Supervisor of the Certification Bureau supported this study.

A distinguishing characteristic of qualitative research is exploration of multiple factors to understand the situation being studied (Gay, 1996). The multiple sources of information gathered for this study were planned to consist of (1) a survey questionnaire distributed to all participants, (2) four on-site interviews at two different locations, (3) two days of 8 mm taping at two different locations, and (4) the researcher’s daily journal notations for each of the two days at two different locations. The study was bounded by time and place to the training program being studied (Creswell, 1997).
The 1999 Initial Questionnaire was developed to address both the Certification Bureau’s MetNet evaluation of their offering on Health Care Financing Administration Quality Indicators/Survey Process Changes and Best Practice Guidelines and this researcher’s interest in adult education, facilitation of learning, and video link effectiveness. The survey questionnaire (see Appendix A) consisted of several sections. The first section identified the participants’ location (site), their reason(s) for participating in the training program and their current knowledge level of the proposed HCFA changes. The second section of the survey instrument asked two open-ended questions: (a) the most valuable aspect of participating in the training session, and (b) recommendations of how the instructor/facilitators could improve video link distance learning offerings. The third section of the questionnaire utilized Likert technique to rate participant responses to 12 statements: (a) six directed to assessing video link effectiveness, (b) four related to the HCFA survey process and guidelines, and (c) two questions relevant to both video link and HCFA effectiveness (Merriam & Simpson, 2000). The fourth section asked participants to share demographic characteristics. Following the written “thank you” for their participation and feedback, participants were able to offer any other feedback they wished.

The 1999 Initial Questionnaire was developed during meetings of the Certification Bureau staff and this researcher. Staff within the Certification Bureau and others interested in video link distance learning piloted the July 1999 Questionnaire. Several
changes in wording clarified the survey questionnaire. The questionnaire formatting was
optimized, question wording and structures were polished, and the revised draft
transmitted via facsimile to the Bureau staff for final input and approval. The July
Questionnaire was the last page of the spiral-bound handout at each of the eight satellite
sites where the video link distance learning entitled “Montana Certification Bureau
Survey Agency Training (MetNet) on HCFA Quality Indicators/Survey Process Changes
and Best Practice Guidelines” was presented. Additional questionnaires were available
for participants who did not receive the bound handouts. Participant surveys were
anonymous and were kept in a locked file until the data was analyzed.

The Training Experience, Data Collection and Other Procedures

The program was broadcast over two days to eight planned and one unplanned
site(s). There were more than 200 participants throughout the nine locations. Table 1
displays the broadcast locations and number of surveyed participants at each location.
Participants included health care professionals from all licensed and certified long-term
care facilities throughout the state of Montana. Representatives from the Certification
Bureau were physically present at each of the planned broadcast locations, thus providing
an on-site expert who could field questions or concerns of local interest and be able to
stand in should any prolonged technical difficulties occur.
Table 1. Location of July Training Sites and Number of Respondent Surveys

<table>
<thead>
<tr>
<th>Location</th>
<th>Respondent Surveys</th>
<th>On-Site Interviews</th>
</tr>
</thead>
<tbody>
<tr>
<td>Billings</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td>Bozeman</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>Great Falls</td>
<td>21</td>
<td>2</td>
</tr>
<tr>
<td>Havre</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Helena</td>
<td>28</td>
<td>2</td>
</tr>
<tr>
<td>Kalispell</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>Miles City</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>Missoula</td>
<td>21</td>
<td></td>
</tr>
</tbody>
</table>

Additionally, four participants from two video link locations offered additional insight during brief on-site interviews. Eight months after the original training program, a random sample of 35 out of the 105 Montana long-term care facilities invited to the July, 1999, training program were selected. These 35 were asked additional open-ended questions regarding perceptions of the July program. This 2000 Follow-Up Questionnaire was addressed to the long-term care administrators who were asked to distribute the questionnaire to all staff who had attended the 1999 Training Program.
Figure 1 depicts the map of the broadcast locations.

**Figure 1**
Quality Division Training Sites for HCFA Quality Indicators/Survey Process Changes and Best Practice Guidelines: Billings, Bozeman, Culbertson (an unplanned site), Great Falls, Havre, Helena, Kalispell, Miles City, and Missoula. Small boxes with numbers indicate the number of returned participant surveys. Montana comprises 147,138 square miles.

**July Great Falls and Helena Face-to-Face Interviews**

In Helena, Montana, on July 21, 1999, and in Great Falls, Montana, on July 22, 1999, face-to-face interviews with two volunteers at each site collected additional information. Volunteers were informed about the purpose of gaining their perceptions about the continuing education via video link distance learning and also their right to terminate the interview at any point. The first five demographic questions were followed by three questions related to (a) previous knowledge or experience of the training topic, (b) the most valuable aspect to the participant of participating in the class, and (c) what
the participant would recommend the instructor/facilitator do to improve video link
distance learning offerings.

July Observational Research

In addition to the surveys and interviews, the investigator videotaped the
proceedings from the back of the room in both Helena and Great Falls and annotated
observations throughout each day’s presentation. Review of the videotapes contributed to
the development of the 2000 Questionnaire. The videotapes were also used to provide
brief segments of the July, 1999, training experience on a compact disc which was
included in the mailing of the 2000 Follow-Up Questionnaire. This compact disc
provided an audio visual memory refresher to those who chose to use it for questionnaire
completion.

2000 Follow-Up Questionnaire

In early March, 2000, 35 of the 105 Licensed and Certified Long-Term Care
Facilities in Montana were randomly selected “to increase the credibility of the findings”
(Gay, 1996, p. 215). A 2000 Follow-Up Questionnaire was sent to these randomly
selected Long-Term Care facilities. This questionnaire survey consisted of (a) a cover
letter explaining the purpose and requesting participation in the 2000 Follow-up
Questionnaire, (b) a compact disc with excerpts from the actual training session (see
Appendix C), (c) three Follow-up Questionnaires with a recommendation for duplication
of additional needed copies, and (d) a pre-paid mailer to return the completed
Questionnaires and CD-ROM. Five open-ended questions investigating what was valuable about video link distance learning and the agency’s use of the conference information were followed by a question about use of the July Summary CD-ROM and four demographic questions (matched to the 1999 Initial Questionnaire). Following the written “thank you” for their participation and feedback, space was provided for participants to offer any other feedback they wished.

Reminders were faxed or if a long-term care facility had no facsimile equipment, mailed to all initially nonresponding facilities to enhance participation in the 2000 Follow-Up Questionnaire. This technique achieved not only an increase in survey return rate, but also had the unforeseen effect of eliciting additional comments from long-term care administrators pertaining to the 1999 Training Program attendance, employee turnover and perceived benefits of participation. These comments were utilized as data equivalent to that acquired in response to the 2000 Follow-Up Questionnaire’s final open ended question, Any Other Comments.

Table 2. lists the geographic location of the 2000 Follow-Up Questionnaire respondents.
Table 2. 2000 Follow-Up Questionnaire Response Characteristics and Geographic Location

<table>
<thead>
<tr>
<th>Location</th>
<th>Respondent Surveys</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choteau</td>
<td>7</td>
<td>Responses from one organization based on a different video link program over a different video link network. Information was reviewed, but excluded from the study results.</td>
</tr>
<tr>
<td>Culbertson</td>
<td>2</td>
<td>Responses from the “unplanned” site (no questionnaires from the July Survey were available to this audience).</td>
</tr>
<tr>
<td>Billings</td>
<td>7</td>
<td>Representing 6 different facilities.</td>
</tr>
<tr>
<td>Bozeman</td>
<td>4</td>
<td>Representing 3 different facilities.</td>
</tr>
<tr>
<td>Great Falls</td>
<td>1</td>
<td>Representing a single facility.</td>
</tr>
<tr>
<td>Havre</td>
<td>0</td>
<td>In the random assignment for the follow-up survey, Havre-area facilities were not selected and thus were not asked to respond.</td>
</tr>
<tr>
<td>Helena</td>
<td>4</td>
<td>Representing 4 different facilities.</td>
</tr>
<tr>
<td>Kalispell</td>
<td>2</td>
<td>Representing a single facility.</td>
</tr>
<tr>
<td>Miles City</td>
<td>6</td>
<td>Representing 4 different facilities.</td>
</tr>
<tr>
<td>Missoula</td>
<td>0</td>
<td>In the random assignment for the follow-up survey, Missoula-area facilities selected attended in Helena.</td>
</tr>
<tr>
<td>Across Montana</td>
<td>5</td>
<td>Five facilities noted a lack of time (1) or change in personnel (4) made participation impossible.</td>
</tr>
</tbody>
</table>

Research Questions

The following research questions guided this study:

Research Question 1: What are participant perceptions about using video link distance learning for continuing health care education?

Research Question 2: Would the quality of the educational presentation have been better in person?

Research Question 3: What do participants recommend program planners consider when planning future continuing education/training programs?
Research Question 4: Did the participants perceive that the video link technology affected the continuing education/training experience positively or negatively?

Research question 1, regarding participant perceptions about using video link distance learning for continuing health care education was addressed by the 1999 Initial Questionnaire questions Q3, Q4, Q16 and 2000 Follow-Up Questionnaire Question 1 (FUQ1) and FUQ2. Research question 2 assessing whether the quality of the presentation would have been better in person is studied through question Q11. Research question 3 exploring participant recommendations for future continuing education/training programs was investigated through Q4, Q16, and FUQ5. Research question 4 focused on whether participants felt video link technology affected the continuing education/training experience either positively or negatively; Q5, Q6, Q8, Q9, Q12, and FUQ2 reflect these perceptions. All of the questions referred to are from the 1999 Initial Questionnaire and the 2000 Follow-Up Questionnaire. (See Appendix A for the 1999 Initial Questionnaire and 2000 Follow-Up Questionnaire.)

Data Analysis

The July 1999 data consisted of (1) the 1999 Initial Questionnaires, (2) four on-site interviews, (3) two days of 8 mm filming, and (4) the researcher's journal entries. The 1999 Initial Questionnaires were organized and data files were created in SPSS® Version 8.0 for each MetNet broadcast location. The on-site interviews were categorized by site and entered into Corel WordPerfect 9.0. The 8mm film was reviewed and copied to a videotape. Journal entries were edited for clarity and entered into Corel WordPerfect 9.0.
The 2000 Follow-Up Questionnaire data consisted of (1) the 2000 Follow-Up Questionnaires and (2) logs of facsimiles and telephone conversations with long-term care personnel generated as part of the Questionnaire reminder process. The 2000 Follow-Up Questionnaires were entered into Ethnograph v5.0™. Creswell described a related program called “NUD-IST (non-numerical unstructured data indexing, searching, and theorizing) . . . developed in Australia in 1991 . . . [as] a popular qualitative analysis package” (Creswell, 1997, p. 157). Investigation of NUD-IST led to interest in understanding Ethnograph v5.0™.

Exploring Ethnograph v5.0™ was a valuable experience, however, when exploring both the July and March data, Microsoft Excel® was identified as the preferred program because of its familiarity for this researcher to manage all of the data. As a result, the July, 1999, SPSS® files were converted to Excel® files. The March 2000 Ethnograph v5.0™ files were transferred to disks and archived. March 2000 data was reviewed again and entered into Excel® files.

Research questions 1 through 4 were analyzed using the Qualitative Data Analysis model described by Seidel “as a process of Noticing, Collecting, and Thinking about interesting things” (Seidel, 1998, p. E-1). This model urges the researcher to separate the findings into different pieces or units that can help the researcher discover patterns or trends. These trends can then be used to offer interpretations about the data relevance (Seidel, 1998). Following the guidelines of Seidel and creating a template similar to Creswell’s Tree Diagram for Case Study, a visual outline of the case context, themes and
CHAPTER 4

RESULTS

Introduction

The purpose of this study was to assess participant perceptions of video link distance learning effectiveness in adult health care continuing education and training. This was accomplished through a naturalistic, qualitative, case study of a continuing education and training program conducted via MetNet video link to eight Montana sites by the Certification Bureau for Medicare Licensed and Certified Long-Term Care Facilities throughout Montana. This chapter provides the results of this study. The 1999 Initial Questionnaire forms comprised of 5 demographic questions, 12 statements assessed using Likert technique responses and 3 open-ended questions were completed at each of the 8 sites by a total of 187 participants. To further amplify perceptions of health care continuing education and training by video link participants, a 2000 Follow-Up Questionnaire comprised of six open-ended questions and five demographic questions was mailed to a random sample of 33% (35N/105) of long-term care facilities throughout Montana. The survey return rate from these health care facilities was 74.2% percent (26/35).

The data and results have been organized around the research questions and topics (overall satisfaction, environment, content, and participant perceptions). Q3 or FU2 refer respectively to 1999 Initial Questionnaire Question 3 or 2000 Follow-Up Questionnaire
Question 2. Table 3 illustrates the relationship between research questions and the 1999 Initial Questionnaire and the 2000 Follow-Up Questionnaire.

Table 3. Relationships between Research Questions, 1999 Initial Questionnaire, and 2000 Follow-up Questionnaire.

<table>
<thead>
<tr>
<th>Study Research Question</th>
<th>Original Participant Survey Relevant Questions July 1999</th>
<th>Follow-Up Survey Relevant Questions March 2000</th>
</tr>
</thead>
</table>
| Research Question 1: Participant Perceptions about Video Link for Continuing Education. | Questions 3, 4  
Question 3. What was the most valuable (to you) aspect of participating in this class?  
Question 4. What would you recommend the instructor/facilitator do to improve video link distance learning offerings?  
Question 16. How useful were the Handouts for you? | Follow-Up Questions 1, 2  
Follow-Up Question 1. What would you tell other healthcare professionals about learning using this form of video link distance learning offering?  
Follow-Up Question 2. What did you like best about the video link distance learning experience? |
| Research Question 2: Would quality be better in person? | Question 11  
Question 11. Would the quality of the educational presentation have been better in person? | Not related |
| Research Question 3: Participant recommendations | Questions 4, 16  
Question 4. What would you recommend the instructor/facilitator do to improve video link distance learning offerings?  
Question 16. How useful were the Handouts for you? | Follow-Up Question 5  
Follow-Up Question 5. Did you use/utilize the information from the training to prepare your organization for future surveys? |
### Study Research Question

<table>
<thead>
<tr>
<th>Original Participant Survey Relevant Questions July 1999</th>
<th>Follow-Up Survey Relevant Questions March 2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Question 4: Participants affected positively or negatively by video-link experience?</td>
<td>Follow-Up Question 2</td>
</tr>
<tr>
<td>Questions 5, 6, 7, 8, 9, 12</td>
<td>Follow-Up Question 2. What did you like best about the video link distance learning experience?</td>
</tr>
<tr>
<td>Question 5. Overall, how satisfied were you with today's conference?</td>
<td></td>
</tr>
<tr>
<td>Question 6. How easy was it to ask question or interact/participate with others involved in the conference?</td>
<td></td>
</tr>
<tr>
<td>Question 7. How well were the training objectives met?</td>
<td></td>
</tr>
<tr>
<td>Question 8. Overall, how well were you able to visualize materials and hear the speakers or participants in the conference?</td>
<td></td>
</tr>
<tr>
<td>Question 9. Overall, how well did the video link equipment work?</td>
<td></td>
</tr>
<tr>
<td>Question 12. Do you think video link distance learning can contribute to effective health education?</td>
<td></td>
</tr>
</tbody>
</table>

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### Research Questions

**Results of Research Question 1**

**Research Question 1:** What are participant perceptions about using video link distance learning for continuing health care education?

The 1999 Initial Questionnaire together with the 2000 Follow-Up Questionnaire survey questions and results relevant to Research Question 1 were:

- **Q3.** What was the most valuable (to you) aspect of participating in this class?
- **Q4.** What would you recommend the instructor/facilitator do to improve video link distance learning offerings?
- **Q16.** How useful were the Handouts for you?
FUQ1. What would you tell other health care professionals about using this form of video link distance learning offering?

FUQ2. What did you like best about the video link distance learning experience?

The video link training program entitled “Survey Agency Training (MetNet) on HCFA Quality Indicators/Survey Process and Best Practice Guidelines” occurred over two full days: Wednesday, July 21, 1999, from 10:00 a.m. - 5:00 p.m., and Thursday, July 22, 1999, from 8:00 a.m. until 4:00 p.m. Two hundred forty-four participants signed the attendance registry. One hundred eighty-seven 1999 Initial Questionnaire surveys were completed with 154 responses provided for Question 3 and 118 responses for Question 4 and 48 responses offered under the Any Other Comments prompt.

Thirty-eight individual participant 2000 Follow-Up Questionnaires representing 26 or 74.2% of the 35 randomly sampled individually licensed long-term care facilities (35/105) throughout Montana (February 2000 figures) relevant to FUQ1 and FUQ2 were completed.

Most Valuable Aspect of Participating - 1999 Initial Questionnaire Survey - Q3

The 1999 Initial Questionnaire asked participants what was the most valuable aspect of participating in the training program. Thirty-two surveys offered no comment in this area. The most important reason according to 65 of 187 (34.7%) participants was receipt of information that would assist them in delivering care to their residents. For some, information related to resident nutrition was of greatest importance while others valued skin care and hydration approaches. One participant reflecting the views of several
others valuing the ability to interact and ask questions, stated “The information offered. Question and answer ability with all providers involved on satellite and surveyors” (Billings participant). While MetNet is a telephone line-based system using compressed video, the satellite reference perhaps illustrates the delivery transparency learners readily accept and expect in distance learning.

Fifty (26.7% or 50/187) of those commenting on what they valued most in participating indicated regulation changes were the most important for them and their facility as this information prepared them for successful surveys. One respondent simply stated “Learning about changes on regulations and to take this back to our facility. We want to do good resident care” (Helena participant). Only five respondents (5/187) singled out quality indicators as their reason for participating, however, many interested in quality indicators included this benefit in earlier descriptions of “gaining information.”

Twelve (6.4%, 12/187) participants singled out the manual or the handouts as the most valuable reason for participating. Their written responses were all very similar to this Kalispell respondent “Our manuals are very informative and gives me materials to have at our facility.”

Recommendations for Video Link Distance Learning - 1999 Initial Questionnaire Survey

Q4 and Q16

Question 4 descriptions provided four common elements: Video link is a valuable training tool; the setting should be conducive to learning (as previously described); presenters should be practiced with content and technology before presenting to
audiences; and materials should be provided for all participants. Participants also suggested: (1) presenters should prepare and avoid reading materials verbatim; (2) use as many examples as possible when illustrating compliance with regulations; and (3) technicians should ensure coordination of both PowerPoint® and video link between all of the sites. Comments illustrating video link was a valuable training tool included:

"I love this type of video presentation because of the amount of resources, people and information available all at once." (Helena, 1999, participant)

"I think this is a great modality despite the few problems. Please do this with other training opportunities more often. I would also like to be able to send more than 2 people." (Missoula, 1999, participant)

"Have more of these. Much better then traveling long distances." (Kalispell, 1999, participant)

"I thought it was very effective." (Great Falls, 1999, participant)

"A good way of providing training." (Billings, 1999, participant)

Most learners have, at some point in their learning endeavors, described to others what makes a good presenter and a worthwhile class or program. Likewise, theorists have identified instructional strategies and instructional materials as essential components necessary for successful learning. Training programs, however, are often afforded too little time to prepare materials and/or practice presentations (Dick & Carey, 1996).

On the first day of the program, July 21, 1999, each participating facility received a single program manual. The spiral-bound manual weighing two and one half pounds contained more than a ream of paper. The manual provided speaker handouts of PowerPoint® presentation slides and essential content for long-term care facility
compliance. This comprehensive information included survey process changes through best practice guidelines (a quality buzz term indicating a statistically sound approach for a process) was considered. Facilities were asked to share their manuals because of the high cost of reproduction. It is helpful to review the broad scope of topics and materials presented when considering participant handout responses. Table 12 in Appendix A illustrates the content for which administrators, nurses, dietitians, and social workers are accountable in every long-term care facility. The scope of duties includes all aspects important to the individual well-being of the facilities residents.

Thirty-six percent (67/187) of those responding to Question 16 exploring the usefulness of the handouts indicated they were “extremely useful” (Scale = 5). Another 38.5% (72/187) rated handouts as a 4 on the 5-point scale. Of the 11 respondents rating handouts as a 1 or 2, the primary reason offered was “never had any” (Billings participant), or “Difficulty in sharing” (Kalispell participant). Responses are presented in Table 4.

Table 4: All Sites Response to Question 16 from 1999 Initial Questionnaire

<table>
<thead>
<tr>
<th>Question 16. How useful were the Handouts for you?</th>
<th>Not useful extremely useful</th>
<th>No useful</th>
<th>Not useful at all</th>
<th>Extremely useful</th>
<th>No response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rating scale: 1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Responses</td>
<td>4</td>
<td>7</td>
<td>31</td>
<td>72</td>
<td>67</td>
</tr>
</tbody>
</table>
Nearly 19% of all respondents to Question 4 offered recommendations related to handouts or materials and while most related to provision of materials for all participants, several offered fiscally sensitive suggestions:

"Receipt of written materials—good for training staff at facility," a view shared by others (10%, 16/154). (Missoula, 1999, participant)

"Get handouts to facilities prior - we can make our own copies if need be.” (Havre, 1999, participant)

“Suggest copy handouts for all even if increased costs. In Colorado, copies were available to buy if facilities wanted more than one.” (Miles City, 1999, participant)

Other Handout suggestions related to their utility or content: "use tabs to find examples;" “bigger print;” “have handouts for all phases of the program . . . some information introduced was not available.”

Environmental issues, too, were identified as important to participants appraisal of a video link offering. Two sites: Billings and Helena were without air conditioning. Air conditioning at the Billings MetNet location was disrupted because of building construction prompting comments from nearly a third of the Billings participants about the difficulty concentrating. One Billings participant represents the Billings views: “Air conditioning hard to concentrate when it is that uncomfortable.” The high temperature for Wednesday, July 21, 1999 was 98 degrees Fahrenheit in Billings. For Thursday, July 22, 1999, the Billings high temperature was 94 degrees. Similarly, in Helena where participants were also without air conditioning due to a malfunction of the system, the high temperature for Wednesday was 87 degrees and on Thursday, 89 degrees. A Helena participant commented “Temperature in auditorium in afternoon not conducive to
remaining alert.” Billings and Helena were unable to heed the recommendations of Caffarella to keep the “temperature between 65 and 70 degrees. If you err, err on the cool side” (Caffarella, 1994, p. 212).

Improved air conditioning was not the only environmental recommendation; additional suggestions were offered ranging from reduction of background noise to provision of water and stretch breaks. Not surprisingly, of the nearly 40 environmental recommendations, most were generally related to the specific site attended and conditions present. For example, a Missoula participant suggested use of a larger room to accommodate a larger attendance. A Miles City participant disliked the use of student/classroom seating for a learning experience of this type. Both Miles City and Helena participants recommended less distracting background noise.

Tell Others - 2000 Follow-Up Questionnaire Survey Q1

The 2000 Follow-Up Questionnaire respondents overall offered positive benefits of a video link training experience, yet cautioned planners to attend to technical difficulties.

“Not having to drive so far.” (Eastern Montana, 2000 FU, participant)

“It is a worthwhile way to attend education sessions. We were fortunate in Helena because we had all of the slides—it seemed like some other links had difficulty with that.” (Central Montana, 2000 FU, participant)

“It is effective and also helps keep training costs for facilities to a reasonable level.” (Western Montana, 2000 FU, participant)

“Make sure that all site representative[s] are trained on the equipment being used and are familiar with operations.” (Eastern Montana, 2000 FU, participant)
Overall 88.8% (24/27) of those responding to the 2000 Follow-Up Questionnaire expressed satisfaction with participation in the video link training finding it a good learning experience. A third of the responses (10/27 or 37.0%) valued the reduced travel and the cost effectiveness (9/27 or 33.33%). Three of the surveys (3/27 or 11.11%) urged preparation and organization prior to undertaking video link broadcasts together with "the ability to communicate effectively on this type of equipment." Such views reinforce Holmberg's belief that teacher/student (presenter/participant) interaction and communication make distance learning content relevant and effective (Moore & Kearsley, 1996; Simonson et al., 2000).

**Liked Best - 2000 Follow-Up Questionnaire Survey Q2**

Nearly half (13/37 or 48.14%) of 2000 Follow-Up Questionnaire respondents appreciated having less travel (staying within the community or traveling only 80 to 100 miles compared to what might have been hundreds of miles to obtain the training). These same participants also valued their interactions with other facilities in other cities and the fact that all organizations were being trained the same way. This appreciation of reduced travel in Montana, our fourth largest state, reflects the previously described views of the rural nurse who regretted her inability to participate in a continuing gerontological educational workshop because of the excessive travel (400 miles), time away from home, and family responsibilities (Cudney, 1991):

"Didn’t have to drive over 100 miles to attend." (Eastern Montana, 2000 FU, participant)
"The variety of speakers/topics and also input from a large variety of facilities."
(Central Montana, 2000 FU, participant)

"Being able to stay in our community and interact with health professionals in this area." (Western Montana, 2000 FU, participant)

These open-ended questions for both surveys provided useful information for those planning training programs using video link distance learning. Respondents to the 1999 Initial Questionnaire placed greater emphasis on learning content whereas respondents to the 2000 Follow-Up Questionnaire valued saved travel and cost effectiveness.

Results of Research Question 2

Research Question 2: Would the quality of the educational presentation have been better in person?

Question 11. Would the quality of the educational presentation have been better in person?

Table 5 presents responses to the 1999 Initial Questionnaire, Question 11, the primary source of data for this question.

Table 5. All Sites Response to Question 11 from 1999 Initial Questionnaire

<table>
<thead>
<tr>
<th>Quality not good at all</th>
<th>Is as good or better</th>
<th>No Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rating scale:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Responses</td>
<td>5</td>
<td>15</td>
</tr>
</tbody>
</table>
Only the 1999 Initial Questionnaire specifically queried whether or not the quality would have been better in person. Twenty-one of the 187 1999 Initial Questionnaires had no response. Five of the surveys indicated the Quality was “not good at all” rating the session with the lowest score, 1; 15 additional respondents ascribed a 2. Twenty percent of those responding (32/155) to this question selected a “5” indicating the quality was “as good or better” than an educational presentation attended in person. Specific demographic or geographic trends were not apparent—though slightly more Helena participants selected “equal to or better” and fewer Kalispell participants seemed to agree. Most participants selected a mid-score (either a 3 or a 4) over any other choice: 3 = 56, 4 = 58, and, again, location and demographics apparently had no bearing. Occasionally, a respondent would ignore the scale and write “Yes” in the field surrounding question 11. Within the 20 “No responses” to question 11 exploring whether the quality would have been better in person, 12 respondents offered a written “Yes” or “No” within the question or response margin. Others including some of whom had provided a rating scale response, amplified their score or clarified their “No response” within the question margins or under the Any Other Comments query, explaining:

“Prefer education presentations in person” (Billings, 1999, participant)

“I liked this better than lots (of) people in one large room” (Billings, 1999, participant)

“15 ums/minute Speaker XX” (Havre, 1999, participant)

“I like the convenience of MetNet, however, 1-1 meetings better” (Kalispell, 1999, participant)
"But it was closer so more could come" (Kalispell, 1999, participant)

"It was fine on video" (Helena, 1999, participant)

"Yes, more give and take" (Helena, 1999, participant)

"Had problems setting up system on first day. A lot of phone calls, E-mail, etc., covered well" (Helena, 1999, participant)

"In person is always better" (Helena, 1999, participant)

Results of Research Question 3

Research Question 3: What do participants recommend program planners consider when planning future continuing education/training programs?

Q4. What would you recommend the instructor/facilitator do to improve video link distance learning offerings?

Q16. How useful were the Handouts for you? Note: So many participants referred to the need for or importance of handouts in open-ended Question 4, the responses to Question 16 are important to the findings of Research Question 3.

Consistent with the findings of several program planning and distance learning researchers (Caffarella, 1994; Holmberg, 1995; Moore & Kearsley, 1996; Simonson et al., 2000), participant recommendations included use of good planning strategies and meticulous attention to technology implementation. The 1999 Initial Questionnaire Survey Question 4 (What would you recommend the instructor/facilitator do to improve video link distance learning offerings?) has been discussed in the analysis of the participant themes as a part of Research Question 1. The recommendation that program planners be attentive to detail when planning programs bears inclusion in this section as
well. Participants emphasize the importance of facility location and environment as paramount to program success. Functioning equipment and flawless technology together with speaker strategies, ability, poise, and materials, however, are no less important. When interruptions occur as with thunderstorms or power outages, fail-back plans seamlessly initiated lessen any disruption allowing the program to continue.

Usefulness of Handouts - 1999 Initial Questionnaire Q16

The 1999 Initial Questionnaire Survey Question 16 (How useful were the Handouts for you?) was also discussed in the analysis of Research Question 1. Program planners attending to Research Question 3 would accordingly carefully develop participant handouts and materials. Attention to such materials not only provides a tool to facilitate program organization and a “note-taking” system, they also become valuable content resources for reference long after the training has been completed (Simonson et al., 2000, p. 153, 151-173). 1999 Initial Questionnaire participants offered valuable organizational, style, and design considerations.

Use of Training Information Preparation for Future Surveys - 2000 Follow-Up Q5

The 2000 Follow-Up Questionnaire Question 5 queried respondents as to whether the 1999 Initial Questionnaire information was utilized to prepare their organization for future surveys. Nearly every respondent (26/27) who had participated in the original training session was positive indicating they had tried very hard to implement the ideas, develop protocols, initiate new quality improvement strategies, and continue to apply the information. One FU survey respondent proudly proclaimed “Yes, in fact we survived
both the state survey and a federal ‘look behind survey’. The feds actually took our hydration program (which was a direct result of the training) for their website” (Central Montana, 2000 FU, participant).

Respondents to FU Question 5 did not offer recommendations for future programs when responding as to how they had utilized the information. Two Miles City-based respondents, however, utilized the Any Other Comments space for future program planning recommendations:

“During the presentation video link was lost for approximately 10-15 minutes. We were never told what information was presented during down time. This could have affected our survey. If the state does this again, they need to be better organized.” (Miles City, 2000 FU, participant)

“Need to do a run through first to make sure all sites are connected and that computers (PowerPoint®) etc., all work before starting. Links had to be worked out during presentation time and then everyone kept apologizing for problems. Thanks.” (Miles City, 2000 FU, participant)

Results of Research Question 4

Research Question 4: Did the participants perceive the video link technology affected the continuing education/training experience either positively or negatively?

Questions from the 1999 Initial Questionnaire:

Question 5. Overall, how satisfied were you with today’s conference?

Question 6. How easy was it to ask questions or interact/participate with others involved in the conference?

Question 7. How well were the training objectives met?
Question 8. Overall, how well were you able to visualize materials and hear the speakers or participants in the conference?

Question 9. Overall, how well did the video link equipment work?

Question 12. Do you think video link distance learning can contribute to effective health education?

Question from the 2000 Follow-Up Questionnaire:

Follow-Up Question 2. What did you like best about the video link distance learning experience?

Five questions from the 1999 Initial Questionnaire (Q5, Q6, Q8, Q9, Q12) were identified as particularly relevant to Research Question 4 in addition to the March 2000 Follow-up Question 5. Together with analysis of the findings, tables 6 through 11 illustrate the response trends.

Table 6. All Sites Response to Question 5 from 1999 Initial Questionnaire

| Question 5. Overall, how satisfied were you with today's conference? |
|------------------------|-----------------|----------------|-----------------|-----------------|
| Not at all satisfied   | Highly satisfied| No Response    |
| Rating scale: 1        | 2               | 3              | 4               | 5               |
| Responses              | 3               | 6              | 68              | 95              | 13              | 2               |

With the exception of a few, participants offered high satisfaction ratings for the conference. Several remarks clarified the ratings: “It was fine—even though problems and storms” to “I enjoyed the in-service and feel like I learned a lot.” Satisfaction responses are presented in Table 6.
Table 7. All Sites Response to Question 6 from 1999 Initial Questionnaire

<table>
<thead>
<tr>
<th>Extremely Difficult</th>
<th>Extremely Easy</th>
<th>No Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rating scale:</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Responses</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

Although, many respondents stated it was “easy” to ask questions via the video link equipment, there were some who disagreed. One participant remarked that the video link technology and how to ask questions was not explained to the participants at the Havre, Montana, location. A Bozeman participant indicated their site had difficulty asking questions. Overall, participants found interaction with other sites and the on-site agency coordinators very user friendly. The responses of participants rating their ability to interact and ask questions are presented in Table 7.

Table 8. All Sites Response to Question 7 from 1999 Initial Questionnaire

<table>
<thead>
<tr>
<th>Not well at all</th>
<th>Extremely well</th>
<th>No Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rating scale:</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Responses</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

Question 7 (see Table 8) asked participants how well the training objectives were met. Sixty-four percent of those responding to this question rated a four or five (119/187).
One respondent wrote in the question field “Did not see any objectives. Probably due to no manual and slides not presented” (Havre, 1999, participant).

Question 8 exploring participant visualization of materials and ability to hear speakers or participants prompted numerous participant comments and was also rated lower than Questions 5 and 6. Although, there were site facilitators from the Quality Bureau together with site technicians, who are always present for MetNet broadcasts, the large number of participants and participants using cell phones compounded noise levels. Video link difficulties surrounding the broadcast of the PowerPoint® slides started Day 1. The Helena site technician was ill and the substitute was not as familiar as his counterpart with the new equipment and software leading to numerous phone calls and video link conversations between sites. Open microphones in Helena, the primary site, together with background noises from site audiences compounded the frequent interruptions. PowerPoint® slides were e-mailed around mid-morning, but this effort too was thwarted with computer crashes secondary to power outages resulting from severe local thunderstorms. Most participants found Day 2 was much better as most glitches had been corrected, yet the Havre site still had difficulty seeing the PowerPoint® slides on Day 2. Participant responses are presented in Table 9.

Distance learning pioneers have admonished instructors to attend to learning materials and display images as these are too often hastily assembled and left to last-minute distribution schemes. Despite the advance planning undertaken by the Quality Bureau together with the provision of a site facilitator, materials and display images could have benefitted from additional practice and clearer and larger display images.
Table 9. All Sites Response to Question 8 from 1999 Initial Questionnaire

<table>
<thead>
<tr>
<th>Rating scale:</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responses</td>
<td>5</td>
<td>27</td>
<td>68</td>
<td>74</td>
<td>10</td>
</tr>
</tbody>
</table>

One participant described the feelings of many “Some slides are too small, at times blurry. Keep exterior noises down, know where the mics are and if they are on or not. Inform pupils to be quiet” (Helena, 1999, participant). A Miles City participant, though, complimented the Quality Bureau for the provision of site facilitators “The site coordinator was a nice way to get questions answered.”

Table 10. All Sites Response to Question 9 from 1999 Initial Questionnaire

<table>
<thead>
<tr>
<th>Did not work well</th>
<th>Worked very well</th>
<th>No Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rating scale:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Responses</td>
<td>10</td>
<td>26</td>
</tr>
</tbody>
</table>

Question 9 asked 1999 participants to rate how well the video link equipment worked. Their responses and ratings are presented in Table 10. Fifty-three respondents expanded their rating of how well the video link equipment worked. Only 15% (8/53) of these remarks were positive, yet the comments were generally helpful and intended to help the Quality Bureau or anyone planning a video link training program:
"Tune up telecasting and video presentations, probably this is planned, however, time was wasted although an effort was made to move on." (Missoula, 1999, participant)

"Make sure all sites hooked up before starting. Miles City missed the first part this morning. Have PowerPoint® visible slides visible at all sites.” (Miles City, 1999, participant)

"Worked well 'users' of the equipment had some trouble.” (Helena, 1999, participant)

"Smoother link-ups....maybe practice first to know what will work.”(Great Falls, 1999, participant)

Nearly every comment has been outlined by distance learning theorists as a potential problem area that should be anticipated by anyone using distance learning. As is often reality, the best intentions and efforts are stymied by circumstances of resources, funding and nature.

Table 11. All Sites Response to Question 12 from 1999 Initial Questionnaire

<table>
<thead>
<tr>
<th>Question 12. Do you think video link distance learning can contribute to effective health education?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all</td>
</tr>
<tr>
<td>Rating scale:</td>
</tr>
<tr>
<td>Responses</td>
</tr>
</tbody>
</table>

As presented in Table 11, most participants indicated video link distance learning did contribute to effective health education. One respondent succinctly represented the views of many, writing in the margin of the survey question: “Nice - cost effective method of education.”
Respondents to the 2000 FU Question 2 (also explored previously for Research Question 1) on the 2000 Follow-up Questionnaire also reacted positively to their video link training experience. One hundred percent (33/38 - 5 no responses) of the respondents to FU Question 2, were positive about the benefits of video link education and training. Two responses from a distant eastern Montana location reflect the reasons for their positive feelings:

“Interactive between speakers and learning audience—seems more casual and fits in better for adult learners.” (Eastern Montana, 2000 FU, participant)

“Not having to travel a great distance. Networking with other facilities in our areas.” (Eastern Montana 2000 FU, participant)

The overall positive perceptions of these participants in video link distance learning effectiveness in adult health professional education and training in Montana appear to be related to the notable access issues in our large, sparsely populated state.

July 1999 Demographic Characteristics

Ninety-one percent (170) of the conference participants were Caucasian, 3.26% were Native American, 1.63% described themselves as multi-ethnic (N = 3) and there were three non respondents. Educational backgrounds varied, though 64% (119/187) of the participants were registered nurses. Other backgrounds included: Associate Arts degree, Bachelor’s degree, Certified Diet Managers, Computer Repair, Gerontology Certified Nurses, Bachelor’s in History and Teaching, Long-Term Care Course Work, Medical Technician, Nursing Home Administrators, Philosophy Doctorate, Registered
Dietitian, Rehabilitation Nursing, Respiratory Therapist, and Social Work. Table 13 in Appendix A contains a summary of the Demographic responses.

March 2000 Demographic Characteristics

Ninety-three percent (25) of the 27 respondents were female, 7.4% (2) were male. 2000 Follow-Up Questionnaire respondents were also predominantly Caucasian (85%, N = 23); 3.7% were Native American (N = 1); and 7.4% were multi-ethnic (N = 2). Educational backgrounds varied, though 74% (20/27) of the participants were registered nurses. Other backgrounds included: Associate Arts degree, Bachelor’s degree, Certified Gerontology Nurse, Business School, Director of Nursing, and Nursing Home Administrators. Table 13 in Appendix B contains a summary of the Demographic characteristics.

Choteau Follow-up Site

A long-term care facility in Choteau returned seven 2000 Follow-Up Questionnaires. Choteau indicated personnel attending the July 1999 Training were no longer employed at their facility, but that they would respond to the 2000 Follow-Up Questionnaire based on a recent video link distance learning provided for hospice (“a system of family-centered care”) (Mosby, 1998, p. 774). The 2000 Follow-up Questionnaire queried respondents as to whether they were responding based on the July 1999 training experience or a similar training experience. Although the Choteau, surveys were reviewed, all data (with the exception of the finding of personnel who had attended...
the training no longer working at the facility) was excluded as a result of the “screening question.” Limiting data to participation in the July 1999 experience ensured that recommendations were germane to the Certification Bureau’s evaluation feedback.

Culbertson, An Unplanned Site

Three responses to the 2000 Follow-Up Questionnaire provided insight into the “unplanned site” occurring in Culbertson, Montana. Of these respondents, two indicated they attended in Culbertson. Each participant purposefully designated a “penned-in” location for Culbertson as where they had attended the July 1999 training. One participant simply checked Miles City. The two “Culbertson” responses are of particular interest as the program was not scheduled to be broadcast to “Culbertson” or “Sidney,” Montana, though, MetNet is accessible to Culbertson and Sidney through the Eastern Montana Telemedicine Network Site (Montana Information Services Division, 1997). The Montana 1998-1999 Official State Highway Map indicates distances between these two Eastern Montana Telemedicine Network sites are: (1) Culbertson to Miles City, 165 miles; and between (2) Culbertson and Sidney, 37 miles via the most direct route (Montana Department of Commerce and Montana Department of Transportation, 1997).

While most video link applications include software to prevent “pirating in” or “access” to unauthorized broadcasts, installation of new software can result in temporary glitches within systems. This is thought to have occurred with the MetNet and Eastern Montana Telemedicine Network systems in July 1999 following upgrades to the MetNet video link system and software. The two Follow-up Questionnaires specifying Culbertson
as the training location provide additional documentation that the July 1999 Training had been received in Culbertson. Information related to these participants’ training perceptions was quite similar to the scheduled site respondents although the Culbertson site did not have access to a Quality Bureau facilitator who was present at all planned training/broadcast sites. The following describes what a Culbertson participant would “tell others” and “liked best” about the broadcast:

“Very viable option. Costs are less for travel expenses. Usually Sidney does not have a site, but Culbertson does which is 37 miles from here and we don’t have to stay over night. Good use of technology because it is interactive.” (Culbertson, 2000 PU, participant)

These participants were resourceful and clearly benefitted from their experience despite a lack of training material or an on-site facilitator from the Quality Bureau. Their closest planned site was 165 miles from their agency, perhaps prompting their decision to “see” if the broadcast might be accessed, and to their obvious satisfaction it was.

**On-Site Face-to-Face Interviews**

Four on-site face-to-face interviews took place. Two were held in Helena and two occurred in Great Falls, Montana. Although, Creswell’s interviewing procedures were reviewed and an interview protocol developed, the four interviews with training participants did not add the type of in-depth qualitative responses a naturalistic researcher hopes to obtain (Creswell, 1998). There were two reasons for this outcome: (1) the interview time was limited to “breaks” in the training program, and (2) the researcher’s interview skills were not finely crafted. While in-depth responses were not obtained it
was clear from the brief remarks offered by the four interviews they perceived a benefit to them or to their organization had been realized:

“Learning about what the facility needs to do to be survey ready is very helpful.” (Helena, 1999 Interview participant, Day 1)

“Knowing what our organization needs to prepare and have readily available for surveyors before the survey is a big help.” (Helena, 1999 Interview participant, Day 1)

“Interaction was good. Participation helps the organization to succeed in the survey and learn the changes in the regulatory protocols. PowerPoint worked well.” (Great Falls, 1999 Interview participant, Day 2)

“We are able to stay current with survey procedures so we are on top of things. There were a few glitches, but I haven’t been to a distance offering yet that hasn’t had problems.” (Great Falls, 1999 Interview participant, Day 2)

The 2000 Follow-Up Questionnaire was developed to seek the information the face-to-face interview had been unable to produce. The 2000 Follow-Up Questionnaire or remarks spontaneously offered by long-term care administrators in response to survey participation reminders also revealed: (1) seven (20%) of 35 facilities had a new, interim, or acting directors of nursing; (2) three (8.6%) of the 35 facilities reported their organization had never attended the training; and (3) four (11.4%) of the facilities reported the person attending the training had left the organization. In view of HCFA regulation changes and long-term care personnel changes, routine interval training programs for long-term care providers regarding HCFA rules and regulations may benefit both stake holders and surveyors.
This chapter presented the results of the four research questions exploring participant perceptions of video link distance learning for continuing education and training together with the respondents demographic characteristics. Receipt of information related to the regulation changes as presented by the Quality Bureau for the State of Montana was perceived as one of the most valuable reasons for participating in the July 1999 continuing education and training program. Three other themes emerged as a result of both the 1999 Initial Questionnaire and the 2000 Follow-Up Questionnaire: (1) the cost-effectiveness of facility participation when utilizing video link technology to deliver education programs; (2) the benefits of being able to interact with other long-term care facilities when new survey regulations and updates are introduced; and (3) the advantages of reduced travel for participants and facilities alike particularly for a state as large as Montana.

Distance learning as seen by the participants in this research study seems to be widely accepted as a realistic method for learning that can have benefits for busy adults who want to keep abreast of changes in their profession. The recommendations offered by these participants are reflective of those distance learning pioneers have urged program planners to heed. The following chapter will discuss how the recommendations might be utilized in further research.
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CHAPTER 5

SUMMARY, FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

Summary

Purpose and Design

Distance learning has become just another tool in the box for educational achievement. Technologic gains have fostered an increase in the public’s expectation to acquire knowledge, academic degrees, and even credentials wherever one lives or works. Additionally, many required and optional continuing educational opportunities are designed to enhance skills, achieve re-licensure requirements or provide information essential for careers or institutions (Galusha, 1998). Understanding how well video link technology, as perceived by training participants, achieves the course design, instructional techniques, and methods of communication can assist in future continuing education/training endeavors (Moore & Kearsley, 1996). It is important to understand why distance learners participate.

The purpose of this study was to assess participant perceptions of video link distance learning effectiveness in adult health care continuing education and training. Perceptions of participants in the Certification Bureau’s agency training program, “Survey Agency Training (MetNet) on HCFA Quality Indicators/Survey Process Changes & Best Practice Guidelines” as broadcast over MetNet, the Montana education telecommunications network, to nine Montana locations in July 1999 were examined.
Two hundred forty-four health care professionals were asked for their input in four areas: (1) their perceptions about the experience, (2) their perception of video link in comparison with in person training, (3) their recommendations, and (4) whether they were affected positively or negatively by the video-link experience. One hundred eighty-seven of those attending completed surveys (76.63% or 187/244).

This study included data from a March 2000 follow-up survey. The follow-up survey was undertaken to further study perceptions of video link distance learning and to verify the trends found in the original survey. The follow-up survey occurred eight months following the original training experience and included a randomly selected third of Montana long-term care certified and licensed facilities (35/105). Participating organizations were asked for input related to (1) what they would tell others about video link distance learning; (2) what they liked best; (3) how they used and shared the information; and (4) whether they had used the information to prepare for state or federal long-term care licensing and certification surveys. The follow-up survey return rate was 74.2% (26/35).

Overview of the Findings

The study findings indicated attainment of general information and specific information pertaining to quality issues and essential regulation changes was important to participants and their organizations. Cost-effectiveness through reduced travel benefitted participants as well as facilities statewide. The July 1999 Quality Bureau program was the first video link presentation of this kind informing long-term care facilities of regulation
changes and effective techniques with which quality compliance could be accomplished. A number of facilities had not enrolled participants in the 1999 training program. Some facilities had experienced personnel turnover and no longer had staff who had attended the 1999 training program. These facilities (responding to the 2000 Follow-up Questionnaire) all requested access to the training content (workbook and videotape of the proceedings) to train their new personnel. This finding was not expected. More frequent training programs may benefit Montana long-term care facilities, the Quality Bureau and the HCFA alike when training programs are not accessed or personnel changes result in an information deficit.

Findings

Finding 1

Participants like interaction with other surveyors and facilities. Overall, participants particularly valued interaction with others. One of the staunchest supporters and investigators of distance education, Börje Holmberg of Fern Universität has spent decades utilizing, teaching, and investigating distance learning. Going beyond his early theories of distance learning, Holmberg now encourages trainers to carry out their programs so that “personal relations, study pleasure and empathy between students and those supporting them (tutors, counsellors, etc.) are central to learning in distance education.” (Holmberg, 1995, p. 5). Holmberg has found this approach facilitates “motivation to learn and influence[s] the learning favorably” (1995, p. 5). Interaction with other facilities and all of the state surveyors was rewarding and helpful to many
participants. The detailed information covering a broad range of long term care mandates together with surveyor input relevant to specific resident issues was also perceived as valuable. The Quality Bureau was successful in their efforts to encourage interaction adding to content relevancy, motivation, and learning pleasure just as Holmberg has urged (1995).

Some participant descriptive expressions indicated they would have valued additional break time to interact with others, supporting the concept of transactional distance in the learning experience. Distance learning theorists Saba and Shearer might suggest the transactional distance was too great, that is, the instructor/participant interaction (dialog) occurred, but was limited due to the tight presentation timetable (structure) and an inability to be as flexible as some site questions might warrant. Most participants, however, valued their experience (Moore & Kearsley, 1996; Saba & Shearer, 1994).

Finding 2

Participants felt the comprehensive information contained in the manual and handouts was both valuable and relevant for the state and federal surveys. Feedback indicated the majority of participants found the handouts very useful. On the first day of the program, July 21, 1999, each participating facility received a single program manual. The spiral-bound manual weighing two and one half pounds contained more than a ream of paper. The manual provided speaker handouts of PowerPoint® presentation slides and essential content for long-term care facility compliance. The comprehensive information
contained survey process changes through best practice guidelines. Facilities were asked to share their manuals because of the high cost of reproduction. It is helpful to review the broad scope of topics and materials presented when considering participant handout responses. Table 12 in Appendix A illustrates content for which long-term care facility administrators, nurses, dietitians, and social workers are accountable. The scope of duties includes all aspects important to individual well-being of the facilities' residents.

Identifying key elements to successful teaching, Cyrs includes: (1) course planning and copyright issues; (2) supports for learning (such as visuals); and (3) study guide design correlation with television screen (video link distance learning) as important fundamentals (1997). The Quality Bureau was attentive to copyright issues as illustrated in Table 12, Survey Manual Contents Medication Article: "Article reprinted with permission: Beers, M. H. (1997). Explicit criteria for determining potentially inappropriate medication use by the elderly. Archives of Internal Medicine, 157, 1531-1536" in Appendix A. Equally important, the manual or study guide was correlated with the video link presentations and slides. The fact that there was only one manual per facility, however, meant less than half of those attending had access to the handout information.

Finding 3

Some participants felt prepared to train others in their organization. A number of learners indicated they felt prepared to train others suggesting the presentations achieved a goal which Caffarella, deemed important, namely, transfer of learning. These
respondents valued the emphasis the training program placed on regulation changes. The written materials were valued as a staff training tool (1994, pp. 20, 107-118). Clearly these participants were “ready and willing . . . to apply . . . [their] learning” (1994, p.111). Galusha, too, identifies transfer of learning as an important goal of the participants’ post-training capability. Participants recognized the “program content as relevant and practical” for their organizations (Galusha, 1998, p. 12).

Finding 4

Facilities were able to train more staff as a result of improved access through the statewide learning sites. A number of the 1999 Initial Questionnaire participants indicated the value of reduced travel as one of the factors they valued most about participating. Similarly, a third (10/27) of those responding to the 2000 Follow-Up Questionnaire would tell other health care professionals about the benefits of reduced travel and expense for facilities as a result of improved access to the training experience. Expanding his original theories, Holmberg now identifies benefits to society as a relevant component of the distance learning theory and sees “distance education . . . [as] an instrument for recurrent and lifelong learning, for free access to learning opportunities and equity” (Holmberg, 1995).

Finding 5

Participants attending at sites within a short distance to their workplace valued not having to drive long distances, stay overnight or be away from their family. Providing ongoing health education and training to rural areas has been identified as an important
means of improving health outcomes and in overcoming professionals feelings of isolation (Cudney, 1991). In a state as large as Montana, using video link distance education to provide multiple statewide locations for participation can cost effectively include more health care professionals. Participants who might otherwise decline a lengthy trip away from home, increased out-of-pocket expenses, and missed time with their family, can opt to attend at an nearby site. These participants verified the importance of one of Hilary Perraton’s hypotheses, as reported by Simonson et al., that distance education can be delivered to those who might otherwise not attend. Holmberg has observed that “distance education . . . promotes students’ freedom of choice and independence” (Holmberg 1995, p. 4). Comments from survey participants characterized them as individuals who may not have been able to participate in this continuing education if it were not for its convenient access via the video link delivery mode. A few respondents even suggested additional video link access points for training updates. Similarly, others asked for additional seating in more populated cities (Simonson et al., 2000, p. 35).

Finding 6

Most participants perceived the quality via video link was as good as traditional “in-person” presentations. When asked whether the educational presentation would have been better in person, most participants described the video link presentation as a good delivery mode. Despite technical difficulties and confusion, especially on Day 1 of the 1999 training program, participants were happy to have access to new information and
acclaimed the program successful. Continuing adult education is vital and video link
distance learning can be the delivery vehicle.

Finding 7

Facility personnel turnover/attrition was higher than expected. Eight months
following the July 1999 Certification Bureau training session, the March 2000 follow-up
survey revealed 20% (7/35) of participating facilities had new, interim, or acting directors
of nursing who were unfamiliar or unaware of the new compliance guidelines for which
their facilities were responsible. Three (3/35) other long-term care facilities had not
attended the July 1999 training and were unfamiliar with the training program content and
guidelines.

Demographic Trends

Specific demographic influences within the two survey studies were not found to
have influenced participant perceptions. It was interesting to see, however, evidence of
ongoing adult education with respondents indicating they had attained or would soon
attain a specialized certification or advanced degree relevant to their present role within
the organization.
Conclusions

Conclusion 1

Video link distance learning can contribute to continuing education and training and facilitate life long learning among health care professionals. The technology benefits agencies, facilities, and participants alike by increasing access sites while reducing travel and time expenditures. Rather than attending a traditional program, participants may choose video link distance learning as a convenience and time saver in their busy lives. Facilities may choose video link distance learning as a cost-effective method to meet their training obligations. Agencies, like the Certification Bureau, may choose distance learning to rapidly disseminate regulatory mandates among stakeholders, in this case the long-term care facilities. Regardless of why it is utilized, video link technology has demonstrated its effectiveness in numerous studies throughout the world. This effectiveness is not because of the tool or vehicle of video link technology, but rather because of the ability of the program facilitators to provide education and of the learner's ability to be involved or engaged in the experience in spite of notable limitations (Holmberg, 1989, 1995; Mantyla & Gividen, 1997; Moore & Kearsley, 1996; Simonson, et al., 2000).

Conclusion 2

Program success requires planning for the needs and interests of all the stakeholders. Malcolm Knowles has identified assessment of “needs and interests” when planning adult programs as a “critical element.” Society’s, the organization’s, and the
individual’s needs can all be met with systematic planning (Knowles, 1980, pp. 82-93). When planning the Quality Bureau’s training program, the organizers were able to meet the recommendations of Knowles as well as others by identifying their goals and objectives for the program. Working with MetNet facilitators to operationalize training strategies, the Certification Bureau provided their own personnel (surveyors) as the site facilitators at each of the eight statewide locations for the video link program (1980, p. 122-124).

The two-day program was divided into fifteen segments. Quality Bureau surveyors, serving as local site facilitators, presented from each of the eight broadcast locations. While “terminal objectives” as described by Dick and Carey (1996, pp. 124-126) as well as others, were not always strictly addressed, there were identified learning objectives which most participants felt they had achieved “... an excellent comprehensive overview of new changes to the regs... really appreciated the interdisciplinary focus...” (Kalispell participant).

Conclusion 3

Continuing education and training cycles may benefit from frequent repetition of content to ensure routine dissemination of knowledge. There is a need to follow up on retention of information and to convey ongoing information for new learners who have entered the scene and who are unaware or do not recognize their learning needs. Ongoing training and regulatory information may need to be more specific as regulations are modified or added. Facilities themselves may need to re-analyze what new techniques are
needed to improve their own participation in required federal survey procedures. Public agencies may benefit from expanding their continuing education and training product to find faster ways of responding to facility questions and information requests; for example, continued Internet-based information and feedback. Regular cycles may be identified for agency/facility interaction; for example, 90 days, 6 months or annually. Each site may be asked to identify their own needs when federal or state mandatory surveys are imminent, pro-actively seeking refreshers and updates of quality practices and regulatory changes.

**Conclusion 4**

Attention to the technology as well as to the overall learning environment adds to program success. Caffarella and others offer detailed guidelines describing suitable facilities and facility amenities (1994). MetNet’s designated broadcast sites have implemented many of these guidelines: room arrangement, capacity; scheduling, and site technicians (referred to as video site specialists by MetNet) (Montana Information Services Division, 1997). MetNet site locations include both Montana state-owned and private facilities, though all sites are frequented by the public. System outages affected environmental conditions primarily at the state-owned sites of Montana State University - Billings Special Education Building Room 162, and the Department of Public Health and Human Services Basement Auditorium (SRS Building) on July 21 and 22, 1999. Construction activities in Billings and thunderstorms in Helena created both ventilation and power outages which prompted more than a dozen survey recommendations for improvement in air conditioning.
There were other environmental suggestions: (1) "longer breaks," (2) "at a minimum have water available," and (3) "increase attendance capacity." Knowles, Caffarella, and others have illustrated the importance of creating positive learning environments by attending to welcomes, food and beverage, and seating arrangements (Caffarella, 1994; Knowles, 1980). The Quality Bureau’s presentation began with a warm welcome to participants and provided directions regarding access to food, beverage, and restroom locations. Germaine provider and participant introductions were given and important to this study, a request for voluntary participation in the survey response was made. As program costs continue to increase, provision of amenities such as coffee or even water are often beyond the budget scope due to their "nonessential" appearance to managers struggling with funding. This study’s findings, however, suggest that amenities and a comfortable learning environment are quite essential to foster a video link learner’s positive perception of his or her experience.

Conclusion 5

Materials and handouts are both content and support tools for participant orientation and enjoyment of the learning experience. While participants ranked handouts as extremely useful, numerous requests for additional handouts, improved copy readability, and tabbing and numbering were offered. Perhaps two types of handouts could be utilized for each facility: one comprehensive and one designed to allow each participant to better follow each presentation. Materials are more than agency promotional materials in a video link distance learning program. In distance learning
programs, materials are an essential communication tool connecting the facilitators and learners. Participants provided with an orientation to video link technology equipment and interaction strategies will be better prepared to engage in the learning process. Information content (as evidenced in this study) will be useful in later workplace situations. Content resources, references, and agency support are equally beneficial for ongoing learner interaction (Caffarella, 1994; Dick & Carey, 1996; Mantyla & Gividen, 1997; Simonson et al., 2000).

**Conclusion 6**

Program planners need to plan ahead for technology failures. Most program planners whether organizing for traditional or distance learning projects urge organizers to have backup strategies in the event of technology failures. Herring and Smaldino, as described by Simonson et al., emphasize the need to “be prepared in the event that technical problems occur” (2000, p. 115). Such plans together with backup communication plans can make a difference in program outcomes. Opening the training program with technical problems was an unexpected and unpleasant fact the Quality Bureau faced. Despite efforts to quickly ameliorate problems, participants and sites were frustrated. As one site aptly noted “We missed ten minutes and that could have affected our survey.”

Many participants, noting technical problems in content presentation suggested consideration of a “dress rehearsal” to ensure the presentation quality and to reduce the number and types of interruptions of technical personnel troubleshooting problems.
Regardless of the reason for technical problems, systems should be “shaken down” and be operational prior to future presentations.

Recommendations

This study confirms current distance learning theories and reinforces the importance of attention to each step of the distance-learning process. Participant recommendations, unknowingly echoing the philosophies of distance learning theorists, merit review, and implementation by facilitators utilizing video link technology for program delivery.

Recommendation 1: Delivery Medium for Health Care Continuing Education

Distance learning is perceived to be effective, convenient and cost-beneficial medium for provision of training to health care professionals. Continuing health care education using distance learning can have multiple benefits for both participants and organizations and should be considered by program planners.

Recommendation 2: Distance Learning Programs Should Always Include Participant Evaluation

Program evaluation is the tool that conveys participant perceptions to program planners in a timely fashion. This input allows the planners to monitor how well the tenets of distance learning were applied and how effectively content was delivered. Participant evaluation can lead to immediate program planner intervention to correct identified deficiencies.
Recommendation 3: Distance Learning Materials

Ideally each participant should have all training materials in hand during the continuing education/training session. For optimal utilization, materials must ensure consistency and quality, that is, PowerPoint® slide handouts would reflect design input. If costs prohibit Bureau or any organization's sponsorship of individual copies, two additional approaches may be useful to all stakeholders: (1) transmission of materials via the Internet prior to training programs affording facilities the opportunity to print the desired number of additional copies; and/or (2) a Cyrs-modeled interactive study guide designed to accompany the distance learning program. Further, any supervisory or in this case federal agencies such as the HCFA and others should consider assisting agencies in development of workbooks and slides providing additional time for local representatives to attend to implementation to ensure high quality presentations. Similarly, corporately produced visual media has demonstrated post-Fordist or the industrializing concepts visualized by Otto Peters through physician champions providing national outreach to hospital professional staff on more effective or emerging medications (Moore & Kearsley, 1996; Simonson, et al., 2000).

Recommendation 4: Regularly Scheduled Training for Stakeholders

Service industries such as health care, predictably experience high rates of employee turnover and, hence, a continued drain on the agencies' knowledge base. If training for stakeholders is regularly scheduled, information would be continuously evolving between the Certification Bureau and facilities. If responsibility for remaining
current in the knowledge of quality practices and regulatory compliance were built into facility job descriptions, the learning circle of continuing education and training would be triggered. Only through regular monitoring of learner need can appropriate refresher or repeat presentations be timed and provided. Regularity of scheduling training would allow ongoing learner interaction to insure perceived needs were being met and preferred mode of delivery (or education) offered.

Recommendation 5: Faculty Training

As identified in the literature review, Hall emphasizes the need for faculty skill in utilizing distance education technology noting that “no graduate universities have ever taught these skills to the current faculties of the University” (1996, p. 19). Distance teaching and learning, an environment of its own, is beginning to be treated as a field of enormous promise, however, the basic elements of a well-conceived and detailed planning process will always be essential. All organizations implementing video link distance education should have specialized training in its utilization and implementation.

Recommendation 6: Attendance Assessment

That a significant number of facilities, invited to participate in a program of such importance for certification did not, suggests a need to further investigate the specific factors contributing to this finding. Potential contributing factors might include inadequate or ill-timed marketing efforts, inability of facilities to provide learners and simultaneously meet staffing responsibilities, or even that course content did not meet a
facility’s need. Nonparticipating facilities should also be specifically asked if they would have attended had a standard classroom approach been offered.

**Recommendations for Future Studies**

Although many studies have compared traditional learning to distance education and determined equivalent outcomes, whether video link health care professional continuing education and training is equivalent to traditional programs should also be studied. Likewise, participant perceptions of quality should be compared through the learner’s acquisition of knowledge and ability to apply learner objectives.

Because of Culbertson’s participation as an unplanned site without training materials or a site facilitator, a future study to tease out whether the satisfaction they reported was related to the convenience of learning experience or “actual learner involvement in the instructional experience” may be revealing (Simonson et al., 2000, p. 8). Convenience is important as it can contribute to a fertile field in which learning can be sowed.

Lastly, program materials are a costly and important participant communication tool. Even though, many program planning leaders have provided detailed descriptions of the importance of handouts or course materials for distance learning programs, a controlled study investigating various types of handouts for health care continuing education programs may be useful in assessing the most cost effective and truly helpful types.
Summary

This study of a two-day video link presentation clearly indicated video link distance learning contributes to continuing education and training of health care professionals. Participant survey responses identified the importance of understanding the components of the education process. The learners’ desire or the agencies’ need to acquire information was the catalyst for participation and viewed as the most important reason to attend.

This study, which gathered information from the field participants themselves, clearly revealed what distance-learning theorists report, namely that each element of the distance-learning instructional design is important and cannot be ignored. Transactional distance and learning location equivalency described by theorists is clearly perceived by participants: “I couldn’t ask the questions;” or “The responses from other sites were difficult to hear;” “The environment was not conducive to learning as the room was too warm.” Participants, unaware of Perraton’s hypothesis of distance education reaching otherwise unattainable audiences, expressed gratitude for knowledge gains achieved without increased travel or time commitments. Participants who may not have been as fast at note-taking stressed the importance of handouts. Facilities identified a need for ongoing repetition of quality practice and regulatory compliance. In this one study, participants identified many distance education concepts.

Participants supported the suggestions of those distance-learning theorists who stress the need for back-up systems, should failures in primary systems occur.
Thunderstorms and construction-related power outages may be unpredictable, but availability of a secondary system of communication can be certain.

Every member of society will personally need to confront issues of aging, illness, and provision of appropriate care to family member or themselves. There is a shared personal stake in insuring that ongoing education can be effectively delivered to our health care providers to insure that care will be of high quality and to insure it continually evolves as new therapies are developed. Video link technology is one tool likely to be of great value when appropriately applied to health care educational endeavors particularly in rural environments.
REFERENCES


Guba, E. G. (1978) *Toward a methodology of naturalistic inquiry in educational evaluation* (Center for the Study of Evaluation Monograph No. 8). Los Angeles: University of California, Graduate School of Education.


McDonald, B. (1996). Counteracting power relationships when planning environmental education. New Directions for Adult and Continuing Education. 69, 15-25.


Table 12. Survey Training Manual Contents

| Section 1 | PowerPoint® Presentation Quality Indicators  
|           | Provider Feedback Reporting System via Microsoft Internet Explorer®  
|           | PowerPoint® Presentation Sentinel Events  
|           | Facility Characteristics Report  
|           | Resident Level Summary Reports HCFA Standard Automation System Analytic System  
| Section 2 | Facility Guide for the Nursing Home Quality Indicators National Data System  
|           | Steps in the Facility QI Review Process  
| Section 3 | Survey Procedures for Long-Term Care Facilities  
|           | PowerPoint® Presentation Overview of Offsite Survey Preparation, Entrance Conference, Initial Tour, Sample Selection  
|           | Survey Information Checklist for Long-Term Care Facilities  
|           | Roster/Sample Matrix Provider Instructions  
|           | Resident Census and Conditions of Residents  
| Section 4 | Nursing Home Initiative Training  
|           | PowerPoint® Presentation Task SC-Resident Review  
|           | PowerPoint® Presentation Investigative Protocol Abuse Prohibition  
|           | PowerPoint® Presentation Medication Issues/Errors  
| Section 5 | Survey Procedures for Long-Term Care Facilities  
|           | Investigative Protocol: Adverse Drug Reactions  
|           | Different Levels of Change Characteristic of the Nursing Facility Population  
|           | Opportunities Throughout the Care Delivery Process to Justify Treatments and Medications  
|           | Examples of Approaches to Reviewing Appropriateness of Specific Medications  
|           | 3 medication quality articles  
| Section 6 | Explanation of Tags F329-F432: Guidance to Surveyors - Long-Term Care Facilities  
| Section 7 | Nursing Home Initiative Training  
|           | PowerPoint® Presentation Pressure Sore Protocol  
|           | Investigative Protocol Pressure Sore Ulcer  
| Section 8 | Nursing Home Initiative Training  
|           | PowerPoint® Presentation Unintended Weight Loss  
|           | PowerPoint® Presentation Fine Dining  
|           | Investigative Protocol Unintended Weight Loss  
| Section 9 | Nursing Home Initiative Training  
|           | PowerPoint® Presentation Hydration  
|           | Investigative Protocol Hydration  
|           | Investigative Protocol Nursing Services, Sufficient Staffing  
| Section 10| Nursing Home Enforcement PowerPoint® Presentation  
|           | Enforcement Process Changes  
|           | Introduction and Background for the Modification to the Enforcement Process  
|           | Federal Register/Vol 64, No 53/Thursday, March 18, 1999/Rules and Regulations:  
<p>|           | Department of Health and Human Services Health Care Financing Administration 42 CFS Part 488 Medicare and Medicaid Programs, Civil Money Penalties for Nursing Homes (SNF/NF), Change in Notice Requirements, and Expansion of Discretionary Remedy Delegation. |</p>
<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
</table>
| Section 11 | PowerPoint® Presentation Developing Effective Abuse Policies & Procedures  
Abuse, Neglect and Misappropriation of Property Policies and Procedures  
Explanation of Tag Number F223- F226 Abuse: Guidance to Surveyors - LTC Facilities |
| Section 12 | PowerPoint® Presentation Restraint Reduction Program Results  
Restraint Information Sources and Web Sites |
| Section 13 | PowerPoint® Presentation Pressure Sores: Prevention and Treatment  
'Bottoming Out' Description  
Pressure Sore Information Sources and Web Sites  
Mattress Overlays Table |
| Section 14 | PowerPoint® Nutrition & Hydration in Long-Term Care Surveys  
Sample Idea 99.03.0003 Website Materials for Nutrition/Hydration from Iowa Methodist M.C. Des Moines, IA  
Sample Idea 98.03.0001 Dining Experience/Nutrition from Park Haven Health Care Center Bridgeport, TX |
| Section 15 | PowerPoint® Water the Forgotten Nutrient |
| Section 16 | Evaluation Form used for this study |
EVALUATION FORM

Day One: Wednesday, July 21, 1999 Program Time: 10:00 a.m. - 5:00 p.m.
Day Two: Thursday, July 22, 1999 Program Time: 8:00 a.m. - 4:00 p.m.

Please indicate your location for participation:

- Billings (Capacity 45)
- Miles City (Capacity 40)
- Havre (Capacity 18)
- Bozeman (Capacity 30)
- Helena (Capacity 150)
- Great Falls (Capacity 24)
- Missoula (Capacity 45)
- Kalispell (Capacity 30)
- Havre (Capacity 18)
- Missoula (Capacity 45)
- Kalispell (Capacity 30)

We continually work to improve video link programming. Your thoughts and responses to the following questions are sincerely appreciated and will help us improve.

1. Reason for participating in this training program:
   a. ___ To gain knowledge about changes in regulations
   b. ___ To obtain Continuing Education Credits
   c. ___ To fulfill an administrative obligation to my organization
   d. ___ Other: Please specify

2. What do you know about this training program? Please select the best response.
   a. ___ Have minimal awareness of the proposed HCFA Survey changes.
   b. ___ Have a basic awareness of the proposed HCFA Survey changes.
   c. ___ Have had some training for proposed HCFA Survey changes.
   d. ___ Have good awareness of the proposed HCFA Survey changes.
   e. ___ Have trained extensively for the proposed HCFA Survey changes.

3. What was the most valuable (to you) aspect of participating in this class?

4. What would you recommend the instructor/facilitator do to improve video link distance learning offerings?

   ______________________________________________________________________________

The following questions reflect your satisfaction and rate your perceptions about today’s presentation. Please circle your response.

5. Overall, how satisfied were you with today’s conference?
   | Not at all satisfied | 1 | 2 | 3 | 4 | 5 |
   | Highly satisfied    |   |   |   |   |   |

6. How easy was it to ask questions or interact/participate with others involved in the conference?
   | Extremely difficult | 1 | 2 | 3 | 4 | 5 |
   | Extremely easy      |   |   |   |   |   |

7. How well were the training objectives met?
<p>| Not well at all    | 1 | 2 | 3 | 4 | 5 |
| Extremely well     |   |   |   |   |   |</p>
<table>
<thead>
<tr>
<th>Question</th>
<th>Rating Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>8. Overall, how well were you able to visualize materials and hear the speakers or participants in the conference?</td>
<td>Not well at all</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>9. Overall, how well did the video link equipment work?</td>
<td>Did not work well</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>10. How well did the content help increase your knowledge regarding HCFA Quality Indicators/Survey Process Changes &amp; Best Practice Guidelines?</td>
<td>Not well at all</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>11. Would the quality of the educational presentation have been better in person?</td>
<td>Quality not good at all</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>12. Do you think video link distance learning can contribute to effective health education?</td>
<td>Not at all</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>13. Prior to this training, I would rate my knowledge of HCFA’s New Survey Initiative and Quality Indicators as:</td>
<td>Poor</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>14. As a result of this training, my knowledge of HCFA’s New Survey Initiative and Quality Indicators increased:</td>
<td>Not at all</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>15. Access to more video link distance learning health education programs would make continuing education easier to obtain for me.</td>
<td>Not at all</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>16. How useful were the Handouts for you?</td>
<td>Not useful at all</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

The remaining questions provide background information so that we can understand how people with different backgrounds feel about video link training programs.

17. What is your age?
   a. 18-21:
   b. 22-25:
   c. 25-30:
   d. 31-40:
   e. 41-50:
   f. 51-60:
   g. 61-65:
   h. >65:

18. What is your gender?
   a. male
   b. female

19. Below is a list of educational endeavors, please check all that apply to you.
   a. GED or equivalent:
   b. High School:
   c. Certified Nursing Assistant:
   d. Nursing Home Administrator:
   e. LPN:
   f. RN:
   g. AA Degree:
   h. BS Degree:
   i. Master's Degree:
   j. Other: Please specify

20. What is your ethnic origin:
   a. Native American
   b. African American
   c. Caucasian
   d. Asian American
   e. Multi-ethnic
   f. Prefer not to respond

Thank you for your participation in this training program and for your thoughts on how we can continue to improve video link training programs.

Any other comments: __________________________________________________________
Table 13. Summary of July 1999 Survey Demographic Responses

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>N = 187</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age range</td>
<td>22- &gt;65</td>
</tr>
<tr>
<td>Gender</td>
<td>Male = 14 Female = 169 No Response = 4</td>
</tr>
<tr>
<td>Responsibilities</td>
<td>41/187</td>
</tr>
<tr>
<td>Nursing Home Administrators</td>
<td>N = 187</td>
</tr>
<tr>
<td>Nursing Home Administrator</td>
<td>- Registered Nurses 21</td>
</tr>
<tr>
<td></td>
<td>- RN with B.S. Degrees 11</td>
</tr>
<tr>
<td></td>
<td>- RN with M.S. Degrees 4</td>
</tr>
<tr>
<td></td>
<td>- RN with Diploma Degree 1</td>
</tr>
<tr>
<td>Nursing Home Administrator</td>
<td>- Licensed Practical Nurse 1</td>
</tr>
<tr>
<td>Registered Nurses</td>
<td>119/187</td>
</tr>
<tr>
<td>Licensed Practical Nurses</td>
<td>12/187</td>
</tr>
</tbody>
</table>

Ethnicity - July 1999

- Caucasian 169
- Hispanic American 2
- Multi-Ethnic 5
- Native American 1
- Native American Caucasian 2
- No Response 6
- Prefer Not to Respond 2
Age Histogram

<table>
<thead>
<tr>
<th>Bins</th>
<th>Bin Assignment</th>
<th>Frequency</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 - 21</td>
<td>20</td>
<td>0</td>
<td>.00%</td>
</tr>
<tr>
<td>22 - 25</td>
<td>25</td>
<td>6</td>
<td>3.28%</td>
</tr>
<tr>
<td>25 - 30</td>
<td>30</td>
<td>7</td>
<td>7.10%</td>
</tr>
<tr>
<td>31 - 40</td>
<td>35</td>
<td>48</td>
<td>33.33%</td>
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<tr>
<td>41 - 50</td>
<td>45</td>
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<td>78.69%</td>
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<td>51 - 60</td>
<td>55</td>
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<td>96.17%</td>
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<td>61 - 65</td>
<td>60</td>
<td>6</td>
<td>99.45%</td>
</tr>
<tr>
<td>65 &gt; 65</td>
<td>65</td>
<td>1</td>
<td>100%</td>
</tr>
</tbody>
</table>

N = 183; No responses = 4
APPENDIX B

FOLLOW-UP DATA 2000
Dear Long-Term Care Facility:

Last summer you participated in a 2 day training program at one of the following locations: Billings, Bozeman, Great Falls, Havre, Helena, Kalispell, Miles City, or Missoula. We are now finalizing the report about how well the video link distance learning worked and would again appreciate your feedback. Enclosed in this folder you will find:

1. CD-ROM with excerpts from the actual training session.
2. 3 Follow-up Questionnaires (you may copy more if needed).
3. A pre-paid mailer to return the completed Questionnaires and CD.

As a graduate student in the College of Education, Health and Human Development, I have been studying Participant Perceptions of Video Link Distance Learning Effectiveness in Healthcare Continuing Education assessing the impact video link distance learning is having among healthcare professionals in Montana. A random sample of Long Term Care Facilities in Montana are asked to participate in this effort. The information from this survey will be analyzed together with information from the original survey of July 1999. By comparing all the information compiled from the training session and the surveys it may be possible to identify common problems and suggest solutions in video link distance learning. Positive aspects of video link learning will also be highlighted. A summary of the findings will be mailed to each participating facility.

Your individual responses are considered confidential, will not be available for public review and will not be revealed in any reports related to this study. Only the researchers will have access to identifiable data.

To compile the data as quickly as possible, your completion of the enclosed questionnaire within the next 2 weeks and its return in the enclosed stamped mailer would be appreciated. If you have any questions about this Follow-up Survey, please feel free to contact me at (406) 453-2913.

Thank you very much for your efforts in this survey.

Sincerely,

Lynn O'Malley, RN, MPH, CHE
Doctoral student College of Education, Health and Human Development
Montana State University - Bozeman
Survey Agency Training (MetNet) on HCFA Quality Indicators/Survey Process Changes & Best Practice Guidelines

Follow-up Questionnaire
March 2000

Day One: Wednesday, July 21, 1999 Program Time: 10:00 a.m. - 5:00 p.m.
Day Two: Thursday, July 22, 1999 Program Time: 8:00 a.m. - 4:00 p.m.

Last summer you participated in a 2 day training program at one of the following locations: Billings, Bozeman, Great Falls, Havre, Helena, Kalispell, Miles City, or Missoula. We are now finalizing the report about how well the video link distance learning worked and would again appreciate your feedback.

Did you attend the July training? □ July training □ Not this training, but a similar experience

If you did not attend this training, but still wish to respond, you are welcome to share the experiences you had with video link distance learning.

If you attended a similar training, please describe the location and type of experience:

________________________________________________________________________ Location Title/Type: ________________________________________

At what site did you participate: (please check a site below)

_____ Billings _____ Miles City _____ Havre _____ Bozeman

_____ Helena _____ Great Falls _____ Missoula _____ Kalispell

A CD-ROM is enclosed in this packet to help you remember the training session. The CD-ROM can be played in your computer:

If you do not have a CD-ROM drive and wish to receive a videotape version, please call (406) 453-2913, Lynn O'Malley.

Please respond as completely as possible to the following questions:

1. What would you tell other healthcare professionals about learning using this form of video link distance learning offering?

This study has been privately funded. No state, federal or agency funds have been used to pay for this survey.
2. What did you like best about the video link distance learning experience?

3. How did you use conference information you gained at the July conference for your organization?

4. With whom in your organization did you share the information? (e.g., nurses, administrator, etc.). Please indicate all those with whom information was shared.

This study has been privately funded. No state, federal or agency funds have been used to pay for this survey.
5. Did you use/utilize the information from the training to prepare your organization for future surveys?

6. Did you use the CD-ROM to respond to these questions? □ Yes □ No

The remaining questions provide background information so that we can understand how people with different backgrounds feel about video link training programs.

7. What is your age?
   a. 18-21: __  d. 31-40: __  g. 61-65: __
   b. 22-25: __  e. 41-50: __  h. >65: __
   c. 25-30: __  f. 51-60: __

8. What is your gender?
   a. male  b. female

9. Below is a list of educational endeavors, please check all that apply to you.

   a. GED or equivalent: __
   b. High School: __
   c. Certified Nursing Assistant: __
   d. Nursing Home Administrator: __
   e. LPN: __
   f. RN: __
   g. AA Degree: __
   h. BS Degree: __
   i. Master’s Degree: __
   j. Other: __ Please specify __________

10. What is your ethnic origin:
    a. ___ Native American  b. ___ African American
    c. ___ Caucasian  d. ___ Asian American
    e. ___ Multi-ethnic  f. ___ Prefer not to respond

Thank you for your participation in this training program and for your thoughts on how we can continue to improve video link training programs.

Any other comments:

This study has been privately funded. No state, federal or agency funds have been used to pay for this survey.
Table 14. Summary of March 2000 Survey Demographic Responses

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>N = 27</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age range</td>
<td>No Response = 1 25 - 55</td>
</tr>
<tr>
<td>Gender</td>
<td>Male = 2 Female = 25 No Response = 1 N = 27</td>
</tr>
<tr>
<td>Responsibilities</td>
<td>N = 27</td>
</tr>
<tr>
<td>Nursing Home Administrators</td>
<td>7/27</td>
</tr>
<tr>
<td>Nursing Home Administrator</td>
<td>- Registered Nurses 1</td>
</tr>
<tr>
<td></td>
<td>- RN with M.S. Degrees 1</td>
</tr>
<tr>
<td>Registered Nurses</td>
<td>20/27</td>
</tr>
<tr>
<td>Licensed Practical Nurses</td>
<td>1/27</td>
</tr>
</tbody>
</table>

- 5 Facilities no longer had the July 1999 attendees employed

Ethnicity - March 2000

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caucasian</td>
<td>23</td>
</tr>
<tr>
<td>Multi-Ethnic</td>
<td>2</td>
</tr>
<tr>
<td>Native American</td>
<td>1</td>
</tr>
<tr>
<td>No Response</td>
<td>1</td>
</tr>
</tbody>
</table>
Age Histogram

<table>
<thead>
<tr>
<th>Bins</th>
<th>Bin Assignment</th>
<th>Frequency</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-21</td>
<td>20</td>
<td>0</td>
<td>.00%</td>
</tr>
<tr>
<td>22-25</td>
<td>25</td>
<td>0</td>
<td>.00%</td>
</tr>
<tr>
<td>25-30</td>
<td>30</td>
<td>1</td>
<td>4.00%</td>
</tr>
<tr>
<td>31-40</td>
<td>35</td>
<td>6</td>
<td>28.00%</td>
</tr>
<tr>
<td>41-50</td>
<td>45</td>
<td>15</td>
<td>88.00%</td>
</tr>
<tr>
<td>51-60</td>
<td>55</td>
<td>3</td>
<td>100.00%</td>
</tr>
<tr>
<td>61-65</td>
<td>60</td>
<td>0</td>
<td>100.00%</td>
</tr>
<tr>
<td>65 &gt; 65</td>
<td>65</td>
<td>0</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

Histogram

Frequency

Cumulative %

Age Intervals March 2000