CHAPTER I
INTRODUCTION

Context of the Problem

Numerous media-comparison studies reported in the literature lack validity and methodological rigor (Bryant & Hunton, 2000). Previous research has failed to provide a foundation to conclude the effectiveness of distance education delivery over the Internet. Very few media-comparison studies address the area of adult distributed training, a demand that exceeds $600 million in the United States (Whalen & Wright, 2000). In addition, the literature fails to uncover the relative cost-effectiveness of alternative delivery methods that share the same educational objectives. A model might help researchers increase the validity of media-comparison studies in adult distributed training compared to conventional classroom training.

An updated model to study the effectiveness of adult education delivered via the Internet is warranted because of the rapid advancement in computer technologies. In addition, much of the past literature indicates that experimental designs, methods, and reporting are lacking in validity and reliability. A comprehensive model can provide the necessary steps and procedures for conducting experimental research in adult distributed training. One area that is underreported in the literature is the relative cost-effectiveness of utilizing technology to train adults. A satisfactory model must address both the effectiveness of the instruction and also the costs associated with the instruction.

Experimental research strives to establish a cause and effect relationship between two variables, while holding all other variables constant. A control group is used in experimental research to establish a baseline for comparison with the experimental group
or groups (Gravetter & Wallnau, 2000). Educational technology and distance education studies use comparative experimental models with little success because of such methodological problems. A comparison model of experimental research in adult distributed training will provide researchers a construct to conduct valid and reliable measurements and methods.

This dissertation will propose a model to examine the effectiveness and cost-effectiveness of adult distributed training programs delivered over the Internet. A comparison study of the First Connections online training program will illustrate the use of the updated comparison model.

**First Connections**

In 1997, the Nebraska Department of Education Office of Early Childhood Education investigated the feasibility of increasing the quality of infant care in Nebraska by offering First Connections, a web-based distributed training program. Education through technology was embraced because of the geographically dispersed population in the state. In 1998, the Gallup Organization surveyed 27 providers from urban and rural settings in Nebraska (Raikes, 1998). The survey revealed that providers lacked training opportunities, especially in the areas of infant and toddler nutrition, special needs, developmental stages, brain development, and other related topics. Low salaries, distance from training centers, and lack of time prevented providers from making significant investments into training programs.

Beginning in 1999, a group of content experts from academia, childcare centers, the Nebraska Department of Education, and Health and Human Services created the curriculum for First Connections. The overall goal of First Connections was to
disseminate information about the best practices in working with infants and toddlers, using distributed multimedia technology. First Connections was an effort to increase the continuity of care among individual providers. Its additional goals were to increase the quality of care for infants and toddlers, and to improve the feeling of professionalism among providers. Finally, the program sought to enhance the relationship between caregivers and parents (Nebraska Department of Education, 1998).

Nebraska Educational Telecommunications started developing the distributed training program in 1999, and completed production in January, 2001.

First Connections consists of five content modules:

1. Safe and Supportive Environments - to establish and maintain a safe, healthy learning environment;
2. Relationships and Responsive Interaction - to support social and emotional development, and to provide positive guidance;
3. Learning and Development - to advance physical and intellectual competence;
4. Relationships with Families - to establish positive and productive relationships with families;
5. Professionalism and Program Management - to maintain a commitment to professionalism.

Each module is further divided into three to eight lessons. Each lesson ends with an assessment to measure the student’s knowledge.

First Connections is an asynchronous, technology-centered learning program in which the impetus of learning is focused on students but controlled by technology. There is very little input from an instructor. The learner in First Connections has the locus of
control in the program. The learner is an explorer who has control over the learning activities and content. First Connections is described as a level three interactive multimedia distributed learning program. According to Belanger & Jordan (2000), level three interactive multimedia includes text with video, sound, animation, high-resolution graphics, extensive feedback, and complex branching activities. First Connections includes the capacity to track and evaluate the learner’s path movements and learning throughout the course. It contains cognitive objectives that require decision-making and application of knowledge to solve problems.

**Purpose of Study**

The purpose of this study is to create a research model to compare online instruction with conventional classroom instruction on the basis of learning outcomes and cost-effectiveness.

**Research Questions**

1. Can the validity of a media-comparison study be established using an updated media-comparison model?

2. Are the differences in learning outcomes between the classroom group, the experimental non-credit group, and the experimental college credit group based on the training delivery method?

3. How do participants rate the content and presentation of First Connections, and what is their reaction to using a distributed online adult training program?

4. Are there differences in cost-effectiveness between the conventional courses and the distributed online adult training program?
Significance of Study

It is important to understand the effectiveness and cost-effectiveness of distributed training as compared to conventional classroom instruction. Research methods and reporting remain deficient in distributed online adult training media research. A model might help researchers increase the validity of media-comparison studies which contrast adult distributed training with conventional classroom training.

First Connections is a distributed online adult training program. Little is known about the effectiveness and cost-effectiveness of distributed training programs targeted to early childhood care providers. The study will examine this area, along with the reaction of the care providers to the technology.

In summary, the study will attempt to define a research model to compare the effectiveness and cost-effectiveness of distributed training with the effectiveness and cost-effectiveness of conventional classroom instruction. The model will be applied to First Connections and reported in the study. This will afford instructors, policy makers, and taxpayers more information upon which to base decisions about the use of distributed training in early childhood educational programs.

Definition of Terms

Asynchronous Distance Education: A learning environment in which the learner and instructor are not in real-time communication and are separated by time and space (Belanger & Jordan, 2000; Brooks, Nolan & Gallager, 2001).

Distance Education: Educational programs in which students and instructors are separated.
**Distributed Learning:** Distance learning environments in which students and instructors are separated by both time and space. Learners progress through instruction at their own pace.

**Quasi-Experimental Evaluation Research:** The systematic process of proving the value of an activity through the collection of data and the analysis of data using sophisticated statistical techniques (Anderson, Ball, & Murphy, 1975).

**Synchronous Learning:** A learning environment featuring real-time communications.

**Web-based Distributed Learning:** A learning environment in which students engage mediated instruction through a Web-browser, at their own pace, separated geographically from the learning institution.