EFFICACY OF DISTANCE LEARNING FOR PROFESSIONAL DEVELOPMENT OF POLICE OFFICERS

Brian Wayne Donavant

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Efficacy of Distance Learning for Professional Development of Police Officers

by

Brian Wayne Donavant

A Dissertation
Submitted to the Graduate Studies Office of The University of Southern Mississippi in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

Approved:

May 2007

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by

Brian Wayne Donavant

Abstract of a Dissertation Submitted to the Graduate Studies Office of The University of Southern Mississippi in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

May 2007
ABSTRACT

EFFICACY OF DISTANCE LEARNING FOR THE PROFESSIONAL DEVELOPMENT OF POLICE OFFICERS

by Brian Wayne Donavant

May 2007

This study assessed the efficacy of distance learning (DL) for police professional development by examining differences in mean pre- and post-test scores of police training conducted via DL compared to traditional instruction (TI); the potential for successful participation in police professional development training via DL; and whether the potential performance of police officers in DL is related to various demographic factors. Data analyses revealed no statistically significant difference in the effectiveness of the two delivery methods, but did indicate a statistically significant relationship between potential online learning success and police officers’ level of formal education. Anecdotal evidence revealed that there also may be a relationship between previous participation in DL and potential online learning success.

This study also included a qualitative analysis to address considerations of DL delivery methods that were identified through an examination of the current literature. The results indicated that the majority of respondents cited general convenience and scheduling flexibility as positive aspects and the lack of personal interaction or face-to-face contact with the facilitator or other learners as negative.
Most respondents chose TI as their preferred method and cited the lack of interaction with the facilitator or other learners in DL environments as their primary consideration. Interestingly, although most police officers in the study said they preferred TI, the majority felt that DL is an appropriate delivery method for police professional development. Many of the participants in this study felt that the use of DL for delivery of police professional development training provides increased training opportunities; however, they believed that DL is appropriate only within specific topic areas.

DL was not found to be any more effective than the TI methods it complements, but was found to have appropriate applications within the field of police professional development. The researcher concluded that DL is of value to police administrators and trainers when it is used to complement other forms of police training or to provide training to those officers who would benefit most from its use or to whom more traditional delivery methods and training opportunities are limited.
ACKNOWLEDGEMENTS

I gratefully acknowledge those who have contributed so much to enhance my life and education. I extend a word of gratitude to Dr. Willie Lee Pierce, who provided guidance and scholarly advice, and Dr. Karla McCary Pope, with whom I maintained an invaluable friendship throughout this process. Special thanks are given to Dr. John Ralph Rachal who served as professor, my mentor, my committee chair, and, most importantly, my friend.

I also thank my best friend, Dale, a very special lady who never stopped believing in me. Most importantly, I wish to acknowledge my two precious daughters, Shelby and Camryn, who have endured and sacrificed so much – I love you both more than you know.
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<tr>
<td>ABE</td>
<td>adult basic education</td>
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<tr>
<td>CAI</td>
<td>computer-assisted instruction</td>
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<td>DL</td>
<td>distance learning</td>
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<tr>
<td>FBI</td>
<td>Federal Bureau of Investigation</td>
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<tr>
<td>FRCPI</td>
<td>Florida Regional Community Policing Institute</td>
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<td>GED</td>
<td>General Education Development</td>
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<tr>
<td>MAGLOCMLEN</td>
<td>Middle Atlantic-Great Lakes Organized Crime Law Enforcement Network</td>
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<tr>
<td>MOGIC</td>
<td>Mid-States Organized Crime Information Center</td>
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<tr>
<td>NESPIN</td>
<td>New England State Police Information Network</td>
</tr>
<tr>
<td>OLS</td>
<td>online learning success</td>
</tr>
<tr>
<td>RISS</td>
<td>Regional Information Sharing System</td>
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<td>RMN</td>
<td>Rocky Mountain Information Network</td>
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<tr>
<td>ROCIC</td>
<td>Regional Organized Crime Information Center</td>
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<tr>
<td>TI</td>
<td>traditional instruction</td>
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<tr>
<td>TOOLS</td>
<td>Test of Online Learning Success</td>
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<td>WSIN</td>
<td>Western States Information Network</td>
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CHAPTER I

INTRODUCTION

Even in the wake of a plethora of studies examining the efficacy of various educational delivery methods, adult educators continue to debate whether distance learning (DL) is as effective as traditional instruction (TI). While some research studies have found the efficacy to be statistically significant in favor of DL, the majority found no significant difference between the delivery methods. An argument could be made that the explosion of the Internet onto the world scene, and the resulting accessibility to information, has catapulted DL to a position within education not unlike that of computer-assisted instruction (CAI) during the previous decade. Examining CAI, Rachal (1984) concluded that researchers continued to espouse its benefits even in the absence of supporting data, later determining that only three of 21 studies had statistically significant results favorable to CAI (Rachal, 1995). Some researchers have found CAI to be as effective as TI within the fields of secondary and higher education, and more cost effective (University of Nebraska, 2002). Indeed, an examination of the current literature reveals similar descriptions of the accolades for, and limitations of, DL. Why, then, the tremendous acclaim for DL?

Adult education providers spend millions of dollars annually for DL-related technological equipment and programs. Is this tremendous outlay of resources justifiable? If there is no evidence of increased learner retention with the use of DL, perhaps there are benefits beyond those measured by academic performance.

One of the distinct benefits of DL may be learner perception of the technology. Riley (1989) found that 85% of students enjoyed time spent on
computers. While he found no significant differences between CAI and TI, student preference for CAI (and DL) may have enormous implications regarding learner retention, a notorious problem facing adult educators (Fahy, 1989). Some researchers attempt to demonstrate DL’s tremendous potential for adult education by emphasizing its ability to increase student involvement and reduce teaching time. The use of modern technology is the new responsibility of adult educators, and its use is another method of increasing participation and improving retention, allowing for more curriculum and instructional choices (McCullough & McCullough, 1994; University of Nebraska, 2002).

The overwhelming majority of research regarding CAI and DL has been conducted within traditional academic settings: elementary and secondary schools, community colleges, and four-year colleges and universities (Fahy, 1989; McCullough & McCullough, 1994; Rachal, 1995; University of Nebraska, 2002). Within the field of adult education, there is a need for comparison studies that examine DL’s impact upon differing learner groups and upon learners’ attitudes toward themselves and the subject matter. Perhaps DL may be most effective with the very learners who are the most challenging to adult educators: those who glean minimal success from traditional methods of instruction, or those whose access to education is limited through a myriad of circumstances.

The general purpose of this study was to assess the efficacy and feasibility of DL within the area of professional development, particularly as it applies to police officers. Police administrators and trainers must find ways to provide effective professional development at a time when available funds are being diverted to other
areas. Post-9/11 antiterrorism efforts have necessitated an unprecedented need for innovative training of public safety personnel; however, while some funding has been designated for specialized training, it has not kept pace with mandated operational requirements. In short, increased public safety responsibilities since 9/11 have overwhelmed training resources (Sharp, 2003; Weiss & Davis, 2003). Antiterrorism efforts have created new and increased operational responsibilities that, in turn, create new and increased training responsibilities. Police trainers and administrators must also consider the rapidly changing demographics of police officers if professional development efforts are to be optimally effective. The demographic variables of gender, age, educational level, and job tenure within law enforcement have changed dramatically over the past several years (FBI, 2002; Weiss & Davis, 2003). Lost productivity resulting from officers’ participation in required training minimizes the effectiveness of professional development efforts and further depletes already dwindling budgets through the payment of salaries at overtime rates (Sharp, 2003).

Statement of Problem

What are the differences in mean pre- and post-test scores of police officers who participate in professional development via DL compared to those who receive only traditional instruction; is potential performance in DL related to gender, race, age of the adult learner, number of years of police service, number of years of formal education received, and previous exposure to DL as determined by the Test Of Online Learning Success (TOOLS; Appendix B); and what is the attitude of adults within a police professional development environment toward participation in DL and the potential for successful learning by those adults as determined by the TOOLS?
Purpose of Study

The general purpose of this study was to determine the differences in mean pre- and post-test scores of police officers who participate in professional development via DL compared to TI; whether the potential performance of adult learners in DL, as determined by the TOOLS, is related to gender, race, age of the adult learner, number of years of police service, number of years of formal education received, and previous exposure to DL; the potential, as determined by the TOOLS, for online learning success by those adults; and the willingness of adults within a police professional development environment to participate in DL. The primary goal of this study was to determine the efficacy of DL for adult educators, program planners, and police administrators engaged in the professional development of police officers. From an andragogical perspective, a comprehensive assessment of adult learners' attitudes toward the delivery method was crucial. The specific purposes of this study were:

1. To determine, by comparing knowledge-based pre- and post-test scores, whether police officers who participate in professional development courses via DL (experimental group) demonstrated a statistically significant learning improvement.

2. To determine, by comparing knowledge-based pre- and post-test scores, whether police officers who participate in professional development courses via TI (control group) demonstrated a statistically significant learning improvement.

3. To determine, by comparing post-test scores of the control and experimental groups, whether there was a statistically significant difference between learning
improvement of police officers who participated in professional development via DL compared to TI.

4. To assess the potential online success of police officers who participate in professional development courses via DL.

5. To determine if there was a statistically significant relationship between gender and the potential online success of police officers participating in professional development training.

6. To determine if there was a statistically significant relationship between race and the potential online success of police officers participating in professional development training.

7. To determine if there was a statistically significant relationship between age and the potential online success of police officers participating in professional development training.

8. To determine if there was a statistically significant relationship between the number of years of service as a police officer and the potential online success of police officers participating in professional development training.

9. To determine if there was a statistically significant relationship between educational level and the potential online success of police officers participating in professional development training.

10. To determine if there was a statistically significant relationship between previous participation in DL and the potential online success of police officers participating in professional development training.
11. To classify police officers who potentially will participate in professional development training via DL as completers or non-completers based on gender, race, age of the adult learner, number of years of police service, level of formal education, and previous exposure to DL.

Hypotheses

For the purposes of this study, the following hypotheses were tested:

H1: There is a statistically significant increase in police professional knowledge through the use of training delivered via TI, as determined by comparing pre- and post-test scores of police officers who participate in professional development courses via TI (control group).

H2: There is a statistically significant increase in police professional knowledge through the use of training delivered via DL, as determined by comparing pre- and post-test scores of police officers who participate in professional development courses via DL (experimental group).

H3: There is a statistically significant difference between post-test scores of police officers who participated in professional development training via DL compared to TI, controlling for pre-test scores.

H4: There is a statistically significant difference between potential completers and non-completers of police professional development training delivered via DL, as measured by total TOOLS scores.

H5: There is a statistically significant relationship between gender and potential online learning success by police officers, as measured by total TOOLS scores.
H6: There is a statistically significant relationship between race and potential online learning success by police officers, as measured by total TOOLS scores.

H7: There is a statistically significant relationship between age and potential online learning success by police officers, as measured by total TOOLS scores.

H8: There is a statistically significant relationship between the number of years of service as a police officer and potential online learning success by police officers, as measured by total TOOLS scores.

H9: There is a statistically significant relationship between educational level and potential online learning success by police officers, as measured by total TOOLS scores.

H10: There is a statistically significant relationship between previous participation in DL and potential online learning success by police officers, as measured by total TOOLS scores.

H11: Gender, race, age, number of years of police service, level of formal education, and previous exposure to DL statistically significantly classify police officers as completers or non-completers of professional development training offered via DL.

Delimitations

1. This study was delimited to the criterion variables of pre-and post-test scores of police officers who participated in professional development courses.

2. This study was delimited to the placement of police officers into the control or experimental groups by personnel unrelated to this study; the researcher had no control over this placement.
3. This study was delimited to the number of police officers placed in the control or experimental groups by personnel unrelated to this study; the researcher had no control over the number of police officers in each group.

4. This study was delimited to the duration and quality of instruction provided to police officers in the control or experimental groups by personnel unrelated to this study. The researcher had no control over the curriculum for professional development courses from which the pre- and post-test scores were obtained for this study.

5. This study was delimited to adults employed as full-time police officers within the United States.

6. This study was delimited to the online learning success by police officers, based upon total TOOLS scores and the independent variables of gender, race, age, number of years of service as a police officer, level of formal education, and previous participation in DL.

7. Any other subjects, variables, or conditions were considered beyond the scope of this study.

Definition of Terms

Adult Education: “Meaningful educational activities intentionally designed for the purpose of bringing about learning among those whose age, social roles, or self-perception define them as adults” (Merriam & Brockett, 1997, p. 8).

Computer-assisted Instruction (CAI): Computer enhanced version of traditional instruction that is delivered while seated at a personal computer. Instructional
material that is the same as that delivered in the classroom format, but allows self-paced, interactive, individualized learning.

Control Group: Police officers who participated in professional development courses via traditional face-to-face instruction.

Distance Learning (DL) or Online Distance Education: Instructional material that is transmitted and delivered via a personal computer to learners at a location remote from that of the instructor(s). Instruction may include postings, discussion board, online materials, synchronous or asynchronous chat, and other methods, and allows self-paced, interactive, and individualized learning.

Experimental Group: Police officers who participated in professional development courses via distance learning.

Florida Regional Community Policing Institute (FRCPI): A federally funded training facility housed at St. Petersburg College in St. Petersburg, Florida, that provides free police training and technical assistance to law enforcement agencies and the communities they serve. Training is developed collaboratively by the College and the Florida National Guard, and delivered via interactive classroom instruction, community forums, teleconferences, CD-ROM, video, and the Internet.

Learning Improvement: An increase in the professional knowledge of police officers measured by comparison of professional development pre-and post-test scores.

Prior Formal Education, Level of Formal Education, or Educational Level: The number of years of formal education the police officer has completed prior to inclusion in this study.
Race: Socio-political constructs used by people according to the race or races with which they most closely identify. These categories reflect the racial classifications used by the Census Bureau (2000) and are identified as White, Black, Hispanic, Asian/Pacific Islander, American Indian, and Other.

Regional Information Sharing System (RISS): A federally funded program composed of law enforcement agencies at the municipal, county, state, and federal levels, and organized into six geographic regions within the United States. The System assists law enforcement agencies in sharing intelligence and coordinating efforts, based upon identified regional concerns, against criminal networks and related activities that operate in many locations across jurisdictional lines.

Traditional Instruction (TI): Instructional material that is delivered in a classroom, using books and workbooks, attended by several students being taught by instructors.

Years of Service: The number of years of full-time police service the police officer has completed prior to inclusion in this study.

Justification of Study

While a great deal of research has addressed the feasibility of DL within academic settings, notoriously little research has been conducted within the professional development environment. Knowles (1984) maintained that adults are intrinsically motivated toward learning, but that motivation is premised upon their perception of the need to learn given material in relationship to their adult roles; learning that is imposed upon adults will be met with resentment and is minimally effective. Additionally, Nadler and Nadler (1994) determined that organizational effectiveness is maximized only when employee (learner) needs are considered in the
development of training programs. The responsibility of adult educators is to accurately assess learning needs, learners’ willingness to participate in educational endeavors, and learners’ likelihood of success in those endeavors. In short, for adult education to be effective, learners must realize their legitimate need for education within the given context and must be willing, to some degree, to participate in the educational activity.

If, as much of the research has indicated, there is no significant advantage to the effectiveness of DL when compared to TI, but there is also no distinct disadvantage, then either approach would be appropriate given particular circumstances. What are the circumstances in which DL would be the preferred delivery method? Educational endeavors undertaken with computers are advantageous with regard to customization of student interests regarding a particular subject, human interaction (learners are not simply passive recipients, but participants), learner collaboration (in chat rooms, etc.), and adaptability to real-life tasks (Roach, 2002). The advent of computers to everyday life in Western society contributes to their ability to aid in student recruitment and retention; closely related to this factor is learners’ accessibility to instructional material from remote locations and the convenience of accessing the material at times most advantageous to the hectic schedules of many adults (Sakurai, 2002). Such convenience is certainly a factor worth considering in light of the current manpower constraints of many public safety agencies. The ability to participate in training at times that do not adversely affect staffing would be a tremendous benefit. Mager (1997) maintains that instructional efficiency within the professional training arena is realized only when
time away from the work environment is minimized. Emerging technologies are reducing much of the cost associated with the development and delivery of educational materials through DL, providing tremendous savings of professional development resources (Sharp, 2003).

Responsible adult educators must find ways to maximize the benefits of emerging technology while anticipating potential impediments to learning and working to minimize their negative effects. Willingness and the ability to successfully participate in adult education is affected by a myriad of circumstances and demographic considerations including gender, race, or age of the adult learner; tenure within a particular position; educational level; and previous exposure to the educational methodology and delivery method (Bingham, 2002; Chan & Auster, 2003; Delahoussaye, 2002; Holley, 2002; Sakurai, 2002). Similarly, law enforcement trainers and administrators might reasonably infer that these same factors affect police officers' willingness and ability to successfully participate in professional development. Although police agencies can mandate participation, acknowledgement of Knowles' premises regarding the adult learner requires an honest assessment of acceptable delivery methods in order to maximize professional development effectiveness. Therefore, it is imperative that police officers' willingness to participate and the likelihood of success in specific delivery methods be assessed before vast sums are expended on the development of those methods.

Recognition of any educational delivery method as appropriate for providing professional development training and the relevance of any study that examines the efficacy of a particular educational delivery method is logically contingent upon the
data indicating that learning actually occurred. Educational effectiveness generally is determined by learner achievement and results in the acquisition and development of new knowledge and skills (Mager, 1997; Nadler & Nadler, 1994; Rachal, 2002). Accordingly, an investigation was warranted to determine if police officers who participated in professional development training via DL actually increased their professional knowledge as a result of the educational activity, and, if so, how that increase in professional knowledge compared to that of police officers who participated via TI. The first phase of the study compared the increase in professional knowledge of police officers who participated in professional development training via DL to those who participated via TI.

The feasibility of DL within law enforcement depends upon the likelihood of successful completion of professional development courses by police officers who participate via DL. Assessments used by several institutions of higher education when determining the suitability of DL for prospective students include measures of computer literacy, ability to adequately access current technology, communication skills, motivation and persistence, learning styles, lifestyle, and other learner characteristics (Kerr, Rynearson & Kerr, 2003). Based upon the professional demands and time constraints of police officers engaged in professional development, a similarly comprehensive assessment was warranted for the second phase of this research study. Data analysis, measures of reliability, and correlation analyses with the success predictors of self-esteem, intrinsic motivation, reading comprehension, and learning styles suggest that the TOOLS is an internally valid and promising measure of success in the DL environment (Kerr et al., 2003). This phase of the study
evaluated the criterion variables of police officers from police agencies in different geographic regions of the United States in order to provide a sample of respondents more representative of the population.

Open-ended questionnaires were used in combination with survey results to determine contributing factors significant to the learning experiences of the respondents and provide a more comprehensive analysis of the feasibility of DL within the parameters of this study. This study attempted to determine more definitively whether DL is a viable method of adult education within a professional development setting and, specifically, if it is feasible for police training. The results will benefit professional development program planners, police administrators, and trainers in developing the most appropriate methods for providing police training and making decisions related to expenditures and time outlays involving the development and implementation of these programs.
CHAPTER II
REVIEW OF RELATED LITERATURE

Adult educators and program developers, as well as adult learners, often shudder at the thought of education or training that reminds them of their adolescent schoolroom experiences. Responsible adult educators recognize this apprehension and potential detriment to learning, and develop and present educational opportunities that appreciate and maximize the unique nature of adult learners. Within this context, an examination of various adult education principles is appropriate.

Adult Education Perspectives

A recurrent, fundamental principle within the field of adult education holds that adults approach educational endeavors differently than their pre-adult counterparts. Knowles’ (1980) concept of andragogy maintains that:

[adults’] self-concept moves from one of being a dependent personality toward being a self-directed human being; 2) they accumulate a growing reservoir of experience that becomes an increasingly rich resource for learning; 3) their readiness for learning becomes oriented increasingly to the developmental tasks of their social roles; and 4) their time perspective changes from one of postponed application of knowledge to immediacy of application, and accordingly, their orientation toward learning shifts from one of subject-centeredness to one of performance-centeredness (pp. 44-45).
The recognition that the life experiences adults bring to the learning environment can provide a basis for further learning establishes an appropriate backdrop for the consideration of factors pertinent to the development of professional development training. Adults' self-directedness translates into greater internal motivation than that of pre-adults, a factor worthy of consideration by administrators and training providers who may be inclined to mandate training without due consideration of participants’ learning needs. Because adults see themselves primarily as "doers" (Knowles, p. 45), their task-oriented perspective leads them to approach the learning environment seeking an obvious application of the endeavor to their adult roles.

While pre-adult learners are dependent upon teachers for determining what is to be learned and how educational goals are to be met, adults have a need to be generally self-directing. Conflicts often arise between the traditional and deeply engrained, pre-adult methodologies of teacher-disseminated information to passive recipients and the desire to become autonomous individuals, responsible for their own actions (including learning). Many educators of adults often do not understand the need of adult learners to be self-directing; consequently, these educators revert to the only type of educating they understand: teacher-centered and teacher-directed. This tendency, especially when combined with the adult learners' lack of understanding about learner-centered approaches to education – which causes them to sit back, waiting to be "taught" – results in minimally effective educational endeavors.
Demonstrating his apparent contempt for the status quo existing within the field of education, Dewey (as cited in Pulliam & Van Patten, 1999, p. 17) said, “Only in education, never in the life of [the laborer or working adult] does knowledge mean primarily a store of information aloof from doing.” This statement indicates his recognition of integrated subjects and learner-centered, experiential techniques as essential to the educational environment. Knowles (1984) said that failure to recognize this perspective alienates the individual and makes him feel rejected as a person. Lindeman (1945) posited that rigid pedagogical formulae have no place within the field of adult education. Rather than a preparation for living, education is integrally woven into the continuing life process. The necessity for education that appropriately addresses the needs of adult learners while recognizing the experiences they bring to the learning environment demonstrates the position of adult education (and its andragogical assumptions) as vital to life within society. Observing that all education has its rightful purpose, Lindeman identified the social characteristic of adult education as its distinguishing feature. Similarly, Hallenbeck (1964) stated that individuals and society cannot be separated, and although adults must learn what they need and want to learn, these needs and wants are a product of their social interaction and circumstances. For adult learners, their experiences generally define who they are. Because of this inclination toward experiential learning, adults attach greater meaning and greater success to educational techniques such as discussion and practical exercises (Lindeman, 1956).

Havighurst’s seminal work regarding adult developmental tasks identified several phases of adulthood, each with its particular changing roles, through which
individuals pass (Darkenwald & Merriam, 1982). Transitions through these stages evoke a willingness in adults to learn those things necessary to be successful within the given situation. It is important for adult educators and curriculum planners to design educational opportunities and programs that coincide with the developmental tasks of the targeted learners, and with their adult and social circumstances. Accordingly, the learning focus for adults should not necessarily be organized around subject matter, but how the subject matter relates to the real-world situation of the learner.

With all of adulthood's responsibilities and limitations regarding time and resources, adult learners focus on the immediacy of application regarding educational endeavors. They want to apply new skills and knowledge to their current social situation and need to understand its pertinence to their adult role. This is understandable because most adults engage in learning in order to fulfill a need or deficiency identified or produced by their current circumstances. Lindeman (1956, p. 158) stated that “the approach to adult education will be via the route of situations, not subjects.” Education is a mechanism for providing a solution for current problems, and adults enter and participate in educational activities from a problem-centered perspective.

Knowles (1984; 1990) said that adult education should address practical issues of adult life that learners ascribe to their adult situations; and, it must consider the real-life experiences of the learner in order to find this application and provide a basis for further learning. This position indicates an appreciation for the social nature of adult education while implying a level of learner responsibility. While adult educators
have an obligation to be responsive to the needs of the learner, adult learners have the responsibility for recognizing their deficiencies and engaging in educational endeavors to fulfill their learning needs. Maslow's (1954) hierarchy of needs provides an appropriate setting for examination of this perspective. The subordinate levels of needs – in ascending order: physiological, social, and belongingness needs – are sometimes grouped together as deficiency needs, or needs that are satisfied by external factors such as food, shelter, and other necessities that are provided to the affected individual by outside sources. Said another way, these are things given to someone. The embodiment of this perception that society should fulfill external needs manifests itself within the professional development arena by individuals who attend training sessions expecting to be spoon fed information. Conversely, the two remaining ascending needs within the hierarchy – esteem and self-actualization – are often categorized as growth or developmental needs and are intrinsically developed and fulfilled. Self-actualization, the pinnacle of the hierarchy, is often described as a lofty quest rather than a definitive milestone. Though they continually aspire to new heights, self-actualized people are defined by reality rather than what they wish for; they make things happen instead of waiting for them to occur. This problem-centered approach to life leads them to set goals and work to accomplish those goals. Self-actualizers have a sense of vision that things can be better, that organizations of which they are members can prosper, and that individuals within those organizations can improve their station. Fully-realized self-actualization implies that personal development has reached its potential, i.e., there is nothing more to accomplish. Visionary employees who crave empowerment through professional development
education demonstrate the fallacy of this oxymoron: the more educated they become the more educated they realize they need to become.

Whereas Maslow (1954) described deficiency needs in terms of their external factors, he identified growth needs by their characteristics of intrinsic motivation. Application of his hierarchy of needs relates closely to Knowles’ (1984; 1990) assumptions regarding adult learners. Education is essential for the empowerment of individuals within society. When adults realize their potential for positively affecting the productivity and worth of their social environment, they begin to make the transition from deficiency needs, where they are simply a part of their respective group and dependent upon what it can do for them, to growth, where they develop a sense of self-worth by proactively contributing to the success of democratic society and move toward self-actualization.

Nadler’s (1994) implication that intentional learning results from educational activities that people undertake for the specific purpose of learning demonstrates his recognition of the learner’s need to maintain some level of control within the process. Although from a markedly different perspective than Knowles, acknowledgement of this fundamental andragogical principle demonstrates the situational nature of practically all philosophical perspectives within the field of adult education – it may just come down to a matter of degree. Lindeman (1945) clearly described the relationship between social responsibility and adult education. Though he maintained that vocational training, or any educational endeavor in which the learner receives a degree, definitively was not adult education, Lindeman considered adults to be social
in nature. Consequently, adult education should address the needs of the individual within society.

Positing that societal change (or improvement) cannot happen through the evolution of institutions but only results from the education and empowerment of individuals, Freire held that humanization (a concept exhibiting similarities to self-actualization) occurs when an individual recognizes the social forces exerted upon him, reflects upon those forces, and takes action to effect change regarding the forces (Darkenwald & Merriam, 1982). He acknowledged the “horizontal relationship” of teachers and students and maintained that the only legitimate content emanates from the learners. Teachers and students share the roles of facilitators and learners, each participating in the learning process from the others’ perspectives and sharing the educational experience, a position not unlike the interactive educational environment enjoyed through DL.

Evolution of Distance Learning

The concept of distance education is not a new phenomenon and can trace its roots to the mid-1800s, with precursors dating to correspondence study in higher education and the establishment of land grant institutions created by enactment of the Morrill Acts (Holley, 2002). These offerings were significantly advanced by enactment of the Smith-Lever Act and the subsequent establishment of agricultural extension programs offered through these institutions (Darkenwald & Merriam, 1982). The International Council for Correspondence coined the term “distance education” in 1972, providing a label “to the teaching-learning arrangement in which
the learner and teacher are separated by geography and time” (Williams et al., 1999, p. 2).

Within higher education, the traditional lecture was almost exclusively the primary educational delivery method until the late 1980s (O’Malley & McGraw, 1999). Clayton (1992) heralded the mid-1980s as “the transitional phase of educational computing” (Bingham, 2002, p. 27). Educators were becoming more computer literate, and reduced cost coupled with improved performance led to an increased use of computers within educational settings. No longer seen merely as a supplemental tool, advancing technology helped to organize content and greatly influenced instructional methods, leading to the prediction that computers would become essential for education (Bingham, 2002; Gerver, 1984)

During this period, computer-assisted instruction techniques began to be used in a variety of applications. Generally found within synchronous settings, the concept was that of a computer in a direct instructional role, wherein instruction ranged from the simple reproduction of previously written material to the assembly of lessons from several components tailored by the computer to fit the characteristics of each student (Holley, 2002). The impetus for current distance learning (DL) formats reasonably can be traced to the convergence of traditional DL delivery methods and computer-assisted instruction (CAI) techniques.

Previously limited to correspondence courses, tele-courses, and some one- and two-way audio television, DL offerings expanded through the use of technological innovations to include interactive video, computerized laboratories and learning centers, and “chat” rooms (Gellman-Danley & Teague, 1998). An argument could be
made that the explosion of the Internet onto the world scene, and the resulting
accessibility to information, has catapulted DL to a position within education not
unlike that of CAI during the previous decade. The rapid technological changes since
the early 1990s and the expansion of user-friendly and affordable technology
provided sweeping educational format changes that have transformed DL into a new
delivery method representing a wide range of delivery systems including interactive
and asynchronous learning through computers (Gellman-Danley & Teague, 1998;

Advantages and Disadvantages of Distance Learning

Some researchers have found the use of computers and DL delivery methods
to be as effective as TI within the fields of secondary and higher education, and more
cost effective (University of Nebraska, 2002); others decry DL as the downfall of
education (Gladieux & Swail, 1999; Young, 2000). At best, a comprehensive
evaluation of the existing research could lead one to surmise that both delivery
methods work well within certain applications, leading to a proliferation of the “no
significant difference” mentality. Weigel (2000) considered this position more
disturbing than complimentary, noting that TI should not be the benchmark against
which new and emerging educational delivery methods are compared. But, what are
these respective applications and why, then, the tremendous acclaim for DL? Adult
education providers spend millions of dollars annually for DL-related technological
equipment and programs. Is this tremendous outlay of resources justifiable? Even if
there is no evidence of increased learner retention with the use of DL, perhaps there
are benefits beyond those measured by academic performance. Perhaps DL may be
most effective with the very learners who are the most challenging to adult educators: those who glean minimal success from traditional methods of instruction, or those whose access to education is limited through a myriad of circumstances.

One of the distinct benefits of DL may be learner perception of the technology. Riley’s (1989) finding that 85% of students enjoyed time spent on computers may have enormous implications regarding educational participation and learner retention, a notorious problem facing adult educators (Fahy, 1989; McCullough & McCullough, 1994; Sakurai, 2002). DL can increase student involvement and reduce teaching time, both factors that demonstrate DL’s tremendous potential for adult education. The use of modern technology is one method of increasing participation and improving retention, allowing for more curriculum and instructional choices (McCullough & McCullough, 1994; University of Nebraska, 2002).

Concluding that computers are inherently compatible with adult learners and their real-world situations, Gerver (1984) posits that computers can take into account the individual differences in learners that often are not possible for teachers of large groups to recognize and accommodate. He emphasizes that computers allow learners to progress at their own pace and that some students will feel less threatened by a computer than they would by a teacher. Other researchers have highlighted additional advantages: interactive lessons with immediate feedback, real-time monitoring of learner progress, independent learning, increased teacher efficiency by organizing huge amounts of information and reducing grading time, improvement of real-world skills within a technological society, and the development of greater writing ability.
(Cromley, 2000; Desberg, 1994; Sorenson & Snider, 2001). Cromley (2000) went on to note that effective programs promote critical thinking skills, human interaction and student collaboration through the use of chat rooms and discussion boards, accommodate disabilities, provide mechanisms for memorization and the performance of real-life tasks, and reduce the anxiety often associated with speaking in front of groups because learners can explain their thinking without feeling vulnerable.

The use of computers to deliver individualized instruction may be one of the strongest arguments for developing DL programs. The use of computers as a learning medium and delivery method provides a convenient and practical way for learners to work at their own pace on pertinent material (Bingham, 2002; McMahon, Sutton & Taylor, 1986). Though often posited as an advantage of DL, the notion that computer delivery of educational material frees up instructor time is often debated by practitioners of the delivery method (Bingham, 2002; Holley, 2002; Sakurai, 2002). However, the time constraints of most teachers often make it difficult for them to provide TI that maintains the high quality of technological offerings and develop consistently good methods for each class, much less individual students (Gladieux & Swail, 1999; Kulik & Kulik, 1987; Sohlberg, 2000).

Many adult education practitioners have limited knowledge of adult learning principles; they are often real-world practitioners within their respective professional fields who are charged with disseminating information to fellow adults or are K-12 educators with only secondary adult education duties (Bingham, 2002; Darkenwald & Merriam, 1982; Merriam & Brockett, 1997; Rachal, 2002). Indeed, in examining
adult basic education/General Educational Development (ABE/GED) program

providers, Smith, Hofer, and Gillespie's (2001, cited in Bingham, 2002, p. 31) study found that "57% of adult education teachers had not taken a single undergraduate course related to teaching adults" (italics added) and 79% had never participated in research related to the field! Professionally designed and implemented DL programs may provide the vehicle for adult educators to deliver effective educational opportunities and allow practitioners to address the diverse needs of the adult learner (Shaw, 1992).

Critics of DL cite several disadvantages of the use of computers for educational delivery, including the lack of available software and high developmental costs, rapidly changing technology and the almost immediate obsolescence of high-priced equipment, lack of standardization and quality programs, incompetence by users in basic computer skills, and anxiety – from both educators and learners – regarding use of the technology (Bower, 1998; Desberg, 1994; Russell, 1999; Van Dusen, 1997). Some speak out unabashedly against the concept of DL, proclaiming that this method of delivery is an education-based imposter hiding the true motive of corporate profit through digital diploma mills (Young, 2000).

Certainly, some of these factors have been alleviated by the proliferation of personal computers within American households, "computer in every classroom" programs, and a general decline in prices of computers and related hardware during recent years. Also, most programs can be run on the universal Windows operating system. But, Gladieux and Swail (1999) maintain that low income individuals, many of whom are minorities, still are at a distinct disadvantage in this area. Although
recently more affordable, technology is still out of reach to many. The
disenfranchisement of minorities, both ethnicity- and gender-based and resulting from
impoverishment or alienation from opportunities, has long been a source of
contention within the field of education (D’Souza, 1991; Stalker, 1996). The digital
arena is yet another area in which the inequality of educational opportunities is
proclaimed (Roach, 2002).

Discounting the assertion that technology-based instruction is of a lower
quality than the traditional classroom, the director of one educational accrediting
association offered a balanced perspective, stating that, “technology – no matter how
expensive, how ingenious or how exciting – quickly falls by the wayside if it does not
advance the basic business of education: teaching and learning” (Crow as cited in

Elements of an Effective DL Program

It is important that adult learners have a say in the educational experience and
sense the practical application and value of the skill development or knowledge
offered. Successful adult education programs that incorporate technology must enable
learners to exercise at least some degree of control over the learning process
(Bingham, 2002; Dillon, 1990). As adult educators and professional development
program developers attempt to design and implement effective DL programs, they
must create opportunities that acknowledge and address the andragogical assumptions
of adult education.

Successful technology-based adult education programs should have features
that make them reliable, effective, and relevant to targeted learners. Such programs
should utilize learning principles that emphasize an appreciation of previous learning; the mastery of new concepts, skills, and abilities; and the retention of these concepts, skills, and abilities as demonstrated through review and practical application (Bingham, 2002). Competency-based learning principles should be integrated within curriculum and courseware design (Fahy, 1989).

Careful planning should precede the development of any adult education program and its method for delivering educational material, and comprehensive evaluation should validate continuation of the endeavor and refine subsequent iterations (Boone, Safrit & Jones, 2002; Caffarella, 2002). When results are not as predicted after the implementation of technology-based programs, administrators, planners, and facilitators often blame the technology rather than a lack of planning (Bingham, 2002). Similarly, proponents of emerging techniques may proclaim the accolades of particular program offerings as a panacea to the purported shortcomings of traditional programs without the benefit of comprehensive evaluation. Planning and program evaluation are essential if adult education programs using DL delivery methods are to be effective.

Effective DL programs should incorporate adequate opportunities for learners to interact with each other and the instructor, active engagement with the content material, appropriate instructional media, and individualized instruction (McConnell & Schoenfeld-Tachner, 2004). To date, the nearly universal consideration among studies examining the quality of DL programs is student-student and student-instructor communication and interaction (Boaz et al., 2001; Hereford, 2000; Holley, 2002; McConnell & Schoenfeld-Tachner, 2004; Palloff & Pratt, 1999; Picciano,
Although logistical concerns should address organizational and societal needs, curriculum development, and the selection of qualified facilitators, from an adult education perspective the learner-centeredness of the endeavor is paramount.

Related Studies (DL versus Traditional Instruction)

Examining whether distance learning (DL) is as effective as traditional instruction (TI), for every research study that finds the efficacy of DL to be statistically significant, there is an equal or greater number that find no significant difference between the delivery methods. Regarding computer-assisted instruction (CAI), a widely used method of the 1980s and 1990s that possesses characteristics similar to DL, Rachal (1984) concluded that researchers continue to espouse the benefits of computers for instruction even in the absence of supporting data. Cautioning against an increasing inclination to proclaim that CAI was the better method when, in fact, it often was only as good, he later determined that only three of 21 studies had statistically significant results favoring CAI (Rachal, 1995). Similarly, Russell’s (1999) chronological listing of distance education studies begins with Crump’s 1928 doctoral dissertation titled *Correspondence and Class Extension Work in Oklahoma*, which found no statistically significant difference in learning achievement between classroom and correspondence study, and ends with Sechrest’s 1998 study that espoused similar results when comparing web-based classes to traditional classroom formats. Although some comparative studies included in Russell’s list showed a measurable learning benefit attributable to technology, most studies reported no significant difference between delivery methods. Weigel (2000) considered this phenomenon more disturbing than complimentary, positing that
traditional instruction should not be the measure against which all new and emerging methods are compared.

The overwhelming majority of research regarding DL has been conducted within traditionally academic settings: elementary and secondary schools, community colleges, and four-year colleges and universities (Fahy, 1989; Holley, 2002; McCullough & McCullough, 1994; Rachal, 1995; University of Nebraska, 2002). Russell (1999, p. viii) notes that the point of his book *The No Significant Difference Phenomenon* is “that no matter who or what is being taught, more than one medium will produce adequate learning results.” Most of the studies he examined emphasize individual student outcomes rather than academic programs. Acknowledgement that learning effectiveness largely has been based upon student satisfaction with the delivery method begs the question of whether participants simply enjoy the convenience of DL without consideration of their need for accessibility to otherwise unavailable educational opportunities or learning accomplishment. Although tenuous, the perception posited by some researchers that satisfaction may be more important than measures based solely on test scores (Holley, 2002; O'Malley & McGraw, 1999) is interesting in view of Knowles’ andragogical considerations. However, Knowles (1980, p. 19) emphatically stated that the purpose of education is to produce competent individuals by having them “acquire knowledge [and skills...] in the context of its application.” Accordingly, to consider the effectiveness of any educational endeavor or method without examining learning accomplishment is inadequate.
Critical skill training for nurses is one area of professional development training in which the feasibility of DL techniques has been examined. In a survey that asked students to evaluate various online components, researchers reported that the training, which included links to interactive websites, digitally streamed video of health care assessment techniques, and instructional documents, produced results favorable to DL (Lashley, 2005). One hundred percent of participants described the video component as “extremely helpful,” agreed that it took no longer to complete assignments online than in a traditional classroom, and stated that the online nature of the course allowed them to work at their own pace. Additionally, 80% of the respondents described the convenience of working from home or another remote location as a positive aspect of their educational experience. Students completed a post-test to determine learning achievement, and were required to review the material again if they failed to obtain a predetermined minimum score. However, no limit on the number of times the assessment may have been attempted is reported, and the researchers did not compare learning achievement in the online environment to any comparable training in traditional classroom settings.

Ortiz-Rodriguez, Telg, Irani, Roberts, and Rhodes (2005, p. 97) suggest that the majority of research regarding DL has been from a “top-down” approach, examining the delivery method from the perspective of administrators and faculty to students. Even among studies that are based upon learners’ evaluations, participants merely assess those aspects of the educational experience that already have been determined by program developers and providers. When defining quality of DL offerings, Ragan (2003) emphasized the administrative perspective of course
development and evaluation. Conversely, within the field of library and information sciences, Varlejs' (2003) study addressed the issue with the learner at the center of the process. A more holistic approach is warranted, in which the efficacy of DL is examined from the administrative perspective in combination with students' issues and points of view (Mayadas, 2001; Moore, 2002).

In addition to the differing perspectives regarding the evaluation of DL programs, Thompson (1998) cautions that learners are “too heterogeneous to provide a basis for a ‘typical’ profile” (p. 19). Consideration of Knowles' (1984) andragogical assumption regarding the uniqueness of learners’ experiences lends credence to Thompson’s position and emphasizes the need for comprehensive analyses of the delivery method (Ortiz-Rodriguez et al., 2005).

Within the field of police professional development, the scholarship on adult learning principles and adult educational techniques and methodologies is almost nonexistent (Birzer, 2004). A query of the literature revealed scattered articles that addressed teaching strategies in specific areas and some that advocated the use of andragogical techniques as part of a comprehensive approach (Birzer, 2004; Dempsey, 1998; Waggoner & Christenberry, 1997). However, none of these provided any empirical data to demonstrate the efficacy of andragogical approaches compared to pedagogical techniques.

Similarly, the few authors who posited the efficacy of DL within the professional development arena provided nothing beyond a limited offering of self-reported measures of learner satisfaction. While these measures may be pertinent from an andragogical perspective, a review of the literature regarding adult education,
and DL within higher education settings, suggested the necessity of a more comprehensive evaluation. Within the field of adult education in general, and police professional development specifically, there is a need for comparison studies that examine DL’s impact upon differing learner groups and upon learners’ attitudes toward themselves and the subject matter.

Bruns’ (2005) survey results of metropolitan police in Oklahoma provide intriguing insight into the intrinsic motivation toward professional education. The majority of the officers surveyed believed that their respective police organizations did not support their desire for professional education and that administrators did not appreciate their educational accomplishments. Yet, 89% of the officers surveyed had completed professional development training that was not required by their agency and was initiated by the individual officer. While Bruns did not address the issue of DL versus TI or delineate the numbers of officers who participated in their educational endeavors via DL, it is interesting to note that the majority of officers surveyed reported being satisfied with their current employment. Is the fact that these officers participated in voluntary professional education in the absence of organizational support, yet are still satisfied in their current employment, indicative of a correlation between job satisfaction and the ability to obtain professional education? Such a finding would have tremendous implications regarding the applicability of Knowles’ (1980) andragogical assumption of intrinsic motivation to the field of professional development.
Need for Professional Development

Research indicates that participation in professional development education positively influences an individual’s learning, capacity to perform, and competence (Loacker, 1991; Nona, Kenny & Johnson, 1988). Optimum results produce significant increases in professional knowledge and competence; minimal ones, at least, expose uninterested participants to information they may have not otherwise encountered. Mattran (1981, p. 49) notes that effective professional education should offer educational alternatives that provide minimal disruption of participants’ professional lives and present programs that are “more attractive in content and format” than previous forms.

Nadler (1994) held that adult education makes organizations within society more effective by training workers and developing the human resources of the organization. The yield from human resources truly determines the organization’s performance and effectiveness. The organization inevitably develops people: it either helps them grow or it stunts them; it either develops them or it deforms them. In turn, the skills, knowledge, and abilities of the individuals within the organization dictate the prosperity of the institution. Drucker (1997) said that the institutional philosophy must be one that fosters members’ beliefs that they can make a difference, and that their strengths can contribute to the ultimate success of the organization. Arrival at this understanding and realization of the organization’s mission occurs only through the education of the organization’s workers. He emphasized the need to create constancy of purpose toward the improvement of products and services, with a plan to improve organizations’ competitive positions and remain in business. In order to
reach this goal, organizations must adopt new philosophies toward meeting their respective missions, actively seek out and address problems within the organization in an effort to improve it, and institute modern methods of training and supervision. The underpinning of all these points for successful organizational operation is the need to institute a vigorous program of education and retraining.

Impact of DL on Professional Development

Galloway (2005) states that technology has dramatically altered the nature of business within western society, challenging traditional delivery methods and evaluation protocol regarding professional development offerings and positing that distance learning provides a way for organizations to improve training while increasing performance and delivering higher returns on training investments. Identifying it as one of the most dominant evaluation models among adult training programs, Galloway describes Kirkpatrick’s (1976; 1998) model as simplistic and potentially obsolete when evaluating professional development offered through distance learning delivery methods. The plethora of reasons routinely cited for engaging in distance learning and touted as benefits of the delivery method and the complex social context within which adult education occurs create an impractical perspective for evaluation of training programs within the parameters of any one model (Abernathy, 1999; Aldrich, 2002; Bennett & Arthur, 1997). While citing the perceived shortcomings of the Kirkpatrick model, Abernathy (1999) and Galloway (2005) both recognize its flexibility and advocate its evaluative worth when combined with a multi-faceted assessment that specifically addresses the cost-effectiveness of the training endeavor. Any delivery method that alters such an entrenched evaluation
tool as the Kirkpatrick model is certainly worthy of extensive examination and research to determine its most advantageous applications (Galloway, 2005; Horton, 2001; Reddy, 2002).

The establishment and evolution of DL within academic settings is well documented, and the efficacy of the delivery method has been extensively researched, leading numerous authors to tout the accolades of DL within professional settings. Still, while limited empirical studies exist regarding its appropriateness for professional development, DL is finding increasing use within professional training venues. Galloway (2005) notes that technology has altered the nature of business and the way business training is delivered. The integration of technology with experiential learning through DL platforms offers convenient methods for improving training while increasing productivity and fulfilling organizational missions (Bonk, 2002).

Recognizing the need to move beyond the "no significant difference" standard of evaluation for DL, Lowery (2005, p. 9), states that DL is "particularly well suited" within the field of library and information science. Budgetary constraints often limit the acquisition of available training to venues that are readily accessible without vast expenditures of limited resources, a situation remarkably similar to that found within law enforcement. The convenience of course delivery at irregular times and to remote locations, increased student-teacher and student-student interaction, and cost effectiveness espoused by Lowery regarding the use of DL in professional development applications are consistent with Drucker's (1997) principle of providing modern methods of training and the self-directedness of andragogical principles. However, these observations provide no empirical data that DL is actually effective in
increasing the knowledge of the learner, only that it is convenient and frugal. While pertinent from a comprehensive adult education perspective, the subjective nature of such an evaluation without supporting empirical data lends itself to the development of training curricula that may be deemed “successful” for one institution and not necessarily work at another (Carnevale, 2005).

As previously mentioned, one area in which an increasing body of available research supports the use of DL for professional development is nursing. Cravener (1999) states that nursing techniques traditionally have been taught using lecture and face-to-face assessment methods, but advances in educational technology have dramatically expanded DL options within the profession. While much of nursing information education now uses Internet-based delivery systems, there has been little use of DL to develop, maintain, and improve the psychomotor and clinical skills necessary for professional practice (Lashley, 2005; Mallow & Gilge, 1999; Ryan, Carlton, & Ali, 1999; Thompson & Sheckley, 1997). Recent examinations of DL offerings that teach health assessment techniques to nursing practitioners indicate the feasibility of the delivery method to enhance professional skills (Lashley, 2005). Lashley notes that this apparent feasibility is contingent upon the integration of DL and TI formats within comprehensive curricula, and the most significant barrier to successful implementation of DL techniques is the trainers’ inexperience with the delivery method.

Although little formal research regarding the feasibility of DL within professional development settings exists, there are numerous articles touting the accolades of cost effectiveness, availability, and convenience as justification for its
use (Blair, 2001; Clark & Shatkin, 2003; Galloway, 2005; Hacker, 2005; Lowery, 2005; Nitkin, 2005). These evaluations regarding the use of DL within professional development parallel commonly stated benefits within higher education settings. If similarities exist in these areas, are there other parameters regarding the use of DL for professional development that mirror their higher-education counterparts? While subjective evaluation is worthwhile in the consideration of appropriate educational delivery methods and formats, credibility is bolstered through grounded and comprehensive assessment. There is a need for extensive research regarding the feasibility of DL within the field of professional development (Carnevale, 2005; Hacker, 2005; Lowery, 2005).

Professional Development of Police Officers

Having evolved from the guiding philosophy of crime control prevalent among law enforcement agencies during the early- and mid-1900s to the modern perspective of quality-of-life improvement for citizens, American police have maintained a training regimen reflective of the prevailing societal applications of the profession (Deakin, 1988; Trautman, 2002; Trojanowicz & Bucqueroux, 1990). Following the initial efforts at “training” police through an apprenticeship that lasted anywhere from a few hours to a few weeks, the first formal police training school was originated by August Vollmer in Berkeley, California, in the early 1900s. Vollmer recognized that the only solution to the ignorance of individual officers and inefficient departmental operations was formal training (Gammage, 1963), even going so far as to promote the idea that every police officer should have at least a bachelor’s degree (Schanlaub, 2005). The establishment of several state police
agencies during the same period had a significant impact on police training. These agencies were not subjected to the same political pressures as local police; consequently, most were able to develop professional training curricula that improved operational effectiveness and efficiency, and positively influenced many municipal agencies operating within the larger state jurisdictions (Deakin, 1988; Gammage, 1963). The training efforts of state police and the Federal Bureau of Investigation (FBI) during this time produced tangible results, but local police training continued to fall short of the examples set by these agencies (Linkins, 1997). By the mid-1930s, however, some state police training facilities were providing professional courses solely for local police (Gammage, 1963).

The Wickersham Commission reports initiated a steadily increasing emphasis on professionalizing law enforcement through formal education (Deakin, 1988). In 1936, the George-Deen Act made federal funds available for vocational course instruction, and many state boards of education, colleges, and universities became active in the training of police officers (Gammage, 1963). As the overall crime rate and drug addition skyrocketed during the tumultuous period of the 1960s, the public questioned the efficiency of police service within society and demanded increased standards for law enforcement training (Trautman, 1986). During the 1960s and 1970s, the number of higher education programs for police increased dramatically (Deakin, 1988; Gammage, 1963). Since the mid-1960s, a rationale has prevailed that a higher standard of education and training among the nation's police forces would contribute to improved police service by enhancing professional expertise, operational knowledge, initiative, and integrity (Deakin, 1988; Pope, 2003; Trautman,
1986). Indeed, the stated mission of the Office of Police Corps and Law Enforcement Education, a federally-funded program created and authorized by Congress, was “to increase the professional capabilities and stature of law enforcement through training and education” (42 U.S.C §§14090 et seq., p. i).

In addition to the traditional training areas of operational skills, physical fitness, and armed and unarmed arrest and control tactics, modern police officers are challenged to think through the ethical and practical issues that confront them while serving citizens within contemporary society. While empowering from the standpoint of providing a philosophical basis of understanding, police officers must move beyond simply comprehending and appreciating modern ideologies to the practical application of requisite professional knowledge and skills (Della, 2004). Modern police training programs include instruction in the application of law enforcement skills, constitutional law, state and local law, ethnicity and social demographics, communication skills, leadership strategies, relationship building with community leaders, and the social context of pervasive community problems (Department of Justice, 2000; Pope, 2003).

The recent evolution of police service has created an expectation that law enforcement personnel be community problem solvers and community partners; reactionary police service is no longer acceptable. Accordingly, the public has come to expect better educated and more professional police officers. Modern police face issues that often exceed the intellectual parameters of simply being a tenured and competent officer. Law enforcement leaders must confront increasingly complex social issues. For example, the contemporary issues of biased policing or racial
profiling cannot be adequately understood or effectively addressed without some
grasp of social science. Appropriate responses to such issues are impossible without
adequate training in comprehensive community-based programs (Napier, 2005). As
the role of police as problem solvers and community partners has expanded, simply
being a tenured agency member, and understanding and being able to conduct basic
crime
police operations, are insufficient to meet current social challenges and address the
evolving expectations of society. The failure by police administrators and trainers to
address the contemporary training needs of police service will create a generation of
mediocre police personnel who are unprepared to fulfill the requirements of police
service within modern society and eventually lead to a breakdown of other social
institutions (Napier, 2005; Schanlaub, 2005).

Law enforcement leaders are becoming increasingly aware of this evolution in
the field and the need for professional training that adequately prepares police
personnel to address the needs of a changing society (Napier, 2005; Sharp, 2003).
Once administrators recognize and accept the need for continued training, the
problem becomes how to fulfill professional development requirements. Just as
instructional efficiency within the professional training arena is realized only when
time away from the work environment is minimized (Mager, 1997), lost productivity
resulting from officers’ participation in required training minimizes the effectiveness
of professional development efforts and the mission of police organizations (Sharp,
2003). Police service places unusual demands and restrictions on the schedules of
potential learners. It is not always feasible to attend training while working rotating
shifts as a line officer or meeting the demand of excessive hours required of command personnel (Bruns, 2005; Napier, 2005).

Police administrators and trainers must find ways to provide effective professional development at a time when available funds are being diverted to other areas. Post-9/11 antiterrorism efforts have necessitated an unprecedented need for innovative training of public safety personnel; however, while some funding has been designated for specialized training, it has not kept pace with mandated operational requirements. In short, increased public safety responsibilities since 9/11 have overwhelmed training resources (Sharp, 2003; Weiss & Davis, 2003). Antiterrorism efforts have created new and increased operational responsibilities that, in turn, create new and increased training responsibilities.

Over the last several years, and in order to meet the needs of nontraditional learners often found within police service, the use of online professional training has expanded (Bruns, 2005; Napier, 2005; Schanlaub, 2005; Weiss & Davis, 2003). Advocates of this delivery method note its potential to address many of the concerns associated with the hectic schedules of most police officers while fulfilling social and organizational mandates for professional development. An added benefit is DL’s ability to address training responsibilities while minimally impacting staffing requirements (Sharp, 2003).

Use of DL for Police Officers

Police trainers and administrators must consider the rapidly changing demographics of police officers if professional development efforts are to be optimally effective. The demographic variables of gender, age, educational level, and
job tenure within law enforcement have changed dramatically over the past several years (FBI, 2002; Simpson & Richbell, 2000; Weiss & Davis, 2003). Beyond simply acknowledging that these variables exist, Birzer (2004) posits that an understanding and appreciation of their importance is essential to the provision of appropriate police training in modern American society.

The cornerstone of professionalism within any law enforcement organization is its ability to educate and train its personnel (Waggoner & Christenberry, 1997). The undertaking of professional police training must occur within the parameters established by the social situations of the learners (Kennedy, 2003; Nowicki, 2003). Relevant considerations include budgetary constraints of employing agencies, physical distance between employees and available training sites, and the necessity of maintaining adequate staffing of public safety personnel while officers attend requisite professional development training (Dempsey, 1998; Nowicki, 2003; Roach, 2002; Waggoner & Christenberry, 1997). While cognizant of the need for continued police training beyond the basic academy, many police administrators are reluctant to send employees for professional development training (Dempsey, 1998). Lost productivity resulting from officers’ participation in required training minimizes the effectiveness of professional development efforts and further depletes already dwindling budgets through the payment of salaries at overtime rates (Sharp, 2003). Additionally, agencies must pay for travel, lodging, meals, and tuition for officers to attend out-of-town training. Even local or on-site training requires the loss of the employee during the training period, and agencies either must pay other employees
The necessity of providing quality police professional development training requires providers and administrators to recognize and apply new methods about the learning processes of adults, and the motives and environmental factors that directly influence adults’ abilities to acquire new knowledge and skills (Kennedy, 2003). Accordingly, many providers of police professional development training have instituted online or distance learning offerings within their curricula. Unfortunately, while these providers and other advocates continue to proclaim DL’s convenience and cost-effectiveness, a review of the current literature regarding the use of DL within police settings routinely echoes the common attributes espoused within higher education but gives little, if any, empirical evidence to support its efficacy as a vehicle for professional development. At best, advocates and providers of DL for police training continue to espouse the need for innovative professional development delivery methods that address modern societal constraints, even going so far as to proclaim DL a success within these parameters (Lane, 2005; Waggoner & Christenberry, 1997). These results are based upon participant surveys, which employ self-report measures of satisfaction, collected at the conclusion of the training (Dempsey, 1998; Lane, 2005; Nowicki, 2003; Roach, 2002; Waggoner & Christenberry, 1997). These surveys attempt to measure learner satisfaction of the training and its delivery, but fail to employ valid and reliable measures of assessment (Howell, 2002; Merriam & Simpson, 2000; Waggoner & Christenberry, 1997). Additionally, no literature was found that chronicled any empirical research
demonstrating the effectiveness of DL compared to TI within the field of police professional development. In short, there is no evidence to demonstrate that police officers enjoy any increase in job-related skills, knowledge, or abilities through participation in DL, or whether there is any potential for them to do so in view of their job responsibilities or demographic variables within the profession. Indeed, the only documented accolades for DL within the police training arena seem to be some subjective evaluations positing that many people “like it.”

Use of DL for Police Training: Luxury or Responsibility?

Because some studies have shown computer applications to be more effective with college level students and adult learners, one perceived benefit of DL is its potential for appealing to a wider spectrum of participants. The use of technology attracts and maintains the interest of a larger segment of the learner population as demonstrated by enrollment increases in programs that incorporate DL (Bingham, 2002; Holley, 2002; Niemec & Walberg, 1987). Similarly, the use of DL allows adult educators to meet the needs of diverse student populations.

Adult education researchers advise us that new technology and evolving methodologies must be incorporated into educational activities (Bingham, 2002; Holley, 2002; McCullough & McCullough, 1994; Merriweather & Bell, 1994). Garner (2000) admonished adult educators to pursue the development and implementation of technology into their endeavors, positing that learners require and deserve its inclusion. Familiarity with technology is increasingly essential to workplace success, and knowledge and proficiency with computers may be yet another benefit of DL that cannot be measured by test scores alone.
DL continues to gain acceptance within the educational community and is rapidly and increasingly finding its way into professional development applications. There are distinct advantages and disadvantages of utilizing DL. One of the greatest advantages is the potential for truly individualized instruction in response to identified learner needs and situations. Conversely, perhaps the greatest disadvantage is the potential for learners to endure minimally effective educational endeavors that fail to address these same concerns. Adult educators must determine appropriate methods for providing learning opportunities to target populations. Within the arena of professional development, those opportunities must balance the mission of the organization with the needs and situations of the learners. Educators sometimes latch on to any approach that seems innovative, but responsible development of educational methods must be based upon sound, comprehensive research. To that end, this study attempted to ignore the hype that has surrounded the implementation of DL since its inception and concentrate on examining its true efficacy.

Summary

The responsibility of adult educators is to accurately assess learning needs, learners’ willingness to participate in educational endeavors, and learners’ likelihood of success in those endeavors. Emerging technologies are reducing much of the cost associated with the development and delivery of educational materials within DL formats while providing new and exciting educational opportunities. There is a myriad of factors that may affect police officers’ willingness and ability to successfully participate in professional development. Although police agencies can mandate participation, acknowledgement of the unique characteristics of the adult...
learner requires an honest assessment of acceptable methods in order to maximize training effectiveness. Recognition of any educational delivery method as appropriate for providing professional development training is contingent upon the demonstration that participants actually learned. The feasibility of DL within law enforcement depends upon the likelihood of successful completion of professional development courses by police officers who participate via DL, and should be examined in light of the educational parameters of the particular environment and the demographic variables of the participants. Investigation was warranted to determine whether police officers who participated in professional development training via DL actually increased their professional knowledge as a result of the educational activity; if so, how that increase in professional knowledge compared to that of police officers who participate via TI; and how demographic variables may have affected educational results.
CHAPTER III
METHODOLOGY

This study was a comprehensive, three-phase investigation to determine the efficacy of distance learning for the professional development of police officers. The relevance of any study that examines the efficacy of a particular educational delivery method is logically contingent upon the data indicating that learning actually occurred. Educational effectiveness generally is determined by learner achievement and results in the acquisition and development of new knowledge and skills (Mager, 1997; Nadler & Nadler, 1994; Rachal, 2002). Accordingly, the first phase was a quasi-experimental examination of pre- and post-test police professional development scores to determine whether learning occurred pursuant to various delivery methods. The second phase utilized a survey instrument in an attempt to determine whether the potential performance of adult learners was related to various factors and the potential for successful learning by police officers participating in professional development training via DL. The final phase was a qualitative assessment using an open-ended questionnaire in an attempt to determine the effectiveness and feasibility of DL within the parameters of this study.

This chapter of the study discusses the sample of subjects for the experimental and control groups, the survey, and the open-ended questionnaire. Information regarding the instrument used in the correlational and logistic regression analyses, the reliability and validity of the instrument, and the open-ended questionnaire is presented. This chapter includes an explanation of the data-gathering procedures and the statistical procedures that were used in the analysis of data.
Participants

Phase 1

The first component of this study was a quasi-experimental investigation to determine whether learning actually occurs during police professional development training and if DL made a difference in professional development achievement of police officers compared to TI, as demonstrated by pre- and post-test scores. This phase of the study included historical pre- and post-test scores of police officers who participated in professional development courses of similar content via DL and TI. The Florida Regional Community Policing Institute (FRCPI) provides professional development training to police officers through DL and TI delivery methods (FRCPI, 2004). The FRCPI is a federally funded training facility housed at St. Petersburg College in St. Petersburg, Florida, that provides free police training and technical assistance to law enforcement agencies and the communities they serve. Training is developed collaboratively by the College and the Florida National Guard, and delivered via interactive classroom instruction, community forums, teleconferences, CD-ROM, video, and the Internet. This study examined the pre- and post-test scores of police officers who participated in professional development training conducted by FRCPI via DL and TI from January-June, 2005.

Although the identities of the police officers who participated in the professional development training are known to FRCPI personnel, only anonymous pre- and post-test scores were provided to the researcher. The researcher had no control over the placement of police officers into the control or experimental groups. Placement into these groups was determined by the officers who participated in the
training selecting the professional development delivery format in which they desired to participate. These officers were not aware that their pre- and post-test scores would be used in any research study. However, because FRCPI is federally funded, test scores and other information may be used for program evaluation and statistical purposes (FRCPI, 2004). The researcher also had no control over the number of police officers in either group. The number of police officers in the control and experimental groups was determined by the number of officers who selected the respective delivery formats.

_control group_. The 32 police officers in the control group did not participate in professional development training conducted by FRCPI via DL from January-June, 2005. This group received training in the areas of police ethics and domestic violence investigations. The control group officers received only TI attended by several students being taught by instructors in a classroom using books, workbooks, and other materials.

_Experimental group_. The 11 police officers in the experimental group received professional development instructional material transmitted and delivered by FRCPI from January-June, 2005, via a personal computer to learners at a location remote from that of the instructor(s). This instructional material provided training in the areas of police ethics and domestic violence investigations. Instruction included postings, discussion board, online materials, synchronous or asynchronous chat, and other methods, and allowed self-paced, interactive, and individualized learning. The experimental group officers did not participate in traditional instruction attended by
several students being taught by instructors in a classroom using books, workbooks, and other materials.

Phase 2

The Regional Information Sharing Systems (RISS) program is comprised of six regions throughout the United States that share and coordinate law enforcement intelligence and enforcement efforts among member agencies in all 50 states. RISS was founded based upon specific regional crime problems; accordingly, its regions are representative of particular law enforcement needs within their specific geographic areas (RISS, 2004). An examination of the six regions, therefore, logically provides a comprehensive assessment of the national spectrum of any law enforcement concern. Accordingly, the participants of this phase of the study were selected from agencies within the six RISS regions. These regions are:


*Mid-States Organized Crime Information Center (MOGIC)*: Comprised of the states of Illinois, Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota, and Wisconsin.


*Regional Organized Crime Information Center (ROCIC)*: Comprised of the states of Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North
Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, Puerto Rico, and the U.S. Virgin Islands.


One state from each of the six RISS regions was selected randomly to have officers from one of its law enforcement agencies included in the research. This randomization was accomplished by alphabetizing the states within each region and assigning each state a number, in ascending order, between one and nine. Because ROCIC has 16 members, those states and territories were divided into two groups: Alabama-Oklahoma and South Carolina-Virgin Islands. Slips of paper numbered 1–9 were placed in “the hat,” and one slip was selected. The numeral on the slip was 7. Accordingly, the 7th state from each alphabetized list was selected. If a particular region did not contain seven states, the last state on the respective list was selected. A coin toss determined which of the two states on the divided ROCIC list ultimately was selected to represent that region. The states selected were Mississippi, North Dakota, Ohio, Utah, Vermont, and Washington.

Inclusion in the second portion of the research study was limited to full-time police officers employed by law enforcement agencies employing at least 100 officers. Because larger law enforcement agencies routinely deploy personnel in multiple locations throughout their respective jurisdictions, administration of the survey instrument within these agencies was determined to be unmanageable from the
remote location of the researcher. Therefore, inclusion in the study also was limited to
police officers employed by law enforcement agencies employing no more than 200
officers.

One law enforcement agency from each of the six states was selected
randomly to have its officers included in the research. This randomization was
accomplished by placing slips of paper numbered 1–9 in “the hat” and selecting one
slip. The numeral on the slip was 5. The National Directory of Law Enforcement
Administrators (2003) alphabetically lists all police departments within each state in
the United States and includes limited demographic information, including the
number of full-time officers employed by each agency. Accordingly, the 5th
municipal police agency employing 100–200 full-time officers listed under each
respective state was chosen to have its officers included in the study. Because
Vermont had no agencies listed with the requisite number of full-time officers, Rhode
Island was selected as the representative state from NESPIN, based upon the
previously described criteria. Within the state of Mississippi, the 5th listed law
enforcement agency employing the requisite number of full-time officers was the
Gulfport Police Department. The researcher is a former police officer and supervisor
with this agency. In order to reduce the likelihood of biased response based upon the
researcher’s personal affiliation, this agency was not selected to participate in the
study. The next agency listed in the state of Mississippi and employing the requisite
number of full-time officers was the Southaven Police Department. The agencies
selected for participation in the study were: Cuyahoga Falls, OH, Police Department;
Fargo, ND, Police Department; Southaven, MS, Police Department; West Jordan, UT,
Police Department; Woonsocket, RI, Police Department; and Yakima, WA, Police Department. The West Jordan, UT, Police Department failed to complete and return the survey instrument in accordance with the procedure described later in this chapter and was replaced as a participating agency by the Ogden, UT, Police Department.

Administrators for each selected law enforcement agency agreed to participate in the study. Participation in the study of the individual officers within the respective agencies was voluntary, and all participants remained anonymous.

**Phase 3**

The third phase of this study utilized an open-ended questionnaire to address considerations of DL delivery methods that were identified through analysis of the current literature. Participants in the qualitative phase of this study were the same police officers who participated in the *TOOLS*. The qualitative phase questionnaire was a voluntary portion of the study conducted simultaneously with the *TOOLS*, but on a separate instrument. While for ease of distribution and administration the questionnaire was printed on the fourth page of the instrument containing the *TOOLS*, the questionnaire was a separate and distinct phase of this study. Neither refusal to participate in this portion of the study nor questionnaire responses within this portion of the study affected the validity or reliability of the *TOOLS* data. The qualitative phase of the study was used to provide a more comprehensive assessment of the data gathered within the parameters of other phases of this research. Participants in the qualitative phase also remained anonymous.
Instrumentation

Phase 1

The pre- and post-test instruments used to determine whether learning actually occurred during police professional development training, and whether DL made a difference in professional development achievement of police officers compared to TI, were of objective design, e.g., multiple choice and true/false formats. Because all police officers who participate in professional development training offered by FRCPI do so under informed contractual agreements with FRCPI, and in an effort to protect the privacy rights of those police officers, the instruments were developed and maintained by the FRCPI. The researcher had no input into the development or administration of the pre- and post-test instruments. No validity or reliability data for the instruments was available from FRCPI. Only anonymous pre- and post-test scores were forwarded to the researcher for analysis.

Phase 2

The feasibility of DL within law enforcement depends upon the likelihood of successful completion of professional development courses by police officers who participate via DL. Assessments used by several institutions of higher education when determining the suitability of DL for prospective students include measures of computer literacy, ability to adequately access current technology, communication skills, motivation and persistence, learning styles, lifestyle, and other learner characteristics (Kerr, Rynearson & Kerr, 2003). Based upon the professional demands and time constraints of police officers engaged in professional development, a
similarly comprehensive assessment was warranted for the second phase of this research study.

The instrument used in this portion of the study categorized the participants according to the demographic variables of gender, race, age, number of years of police service, number of years of formal education received, and previous exposure to DL techniques. Additionally, it employed an anonymous self-report assessment to measure the adult learners' potential for online learning success. The first page of the instrument (Appendix A) provided instructions for completion of the instrument and solicited the demographic information from participants. The second and third pages of the instrument were comprised of the TOOLS (Appendix B). The instrument distributed by the researcher to gather the data for the second and third phases of this study consisted of four 8 ½ x 11 inch pages. For ease of distribution and administration, these four pages were printed on both sides of one 11 x 17 inch page, which was folded booklet style to comprise the four pages. The fourth page of the instrument (Appendix C) was an open-ended questionnaire that addressed considerations of DL methodologies identified through analysis of the current literature and is discussed later in this chapter. The instruments mailed to each participating law enforcement agency were color-coded by printing on six different colors of paper, with all instruments of like color being mailed to the same participating law enforcement agency. Color-coding the instruments rather than printing an alphabetic or numeric code on the instrument enabled the researcher to monitor the response rate without jeopardizing the perceived anonymity of the respondents. The selection of participants for inclusion in this study and the
procedure for distribution of the survey/questionnaire instruments also is discussed elsewhere in this chapter.

Participants rated each item of the TOOLS using a five-point Likert scale with (1) indicating "strongly disagree" and (5) indicating "strongly agree." While employing a self-report method for collection of the data used in this study increased the possibility that the information gained from the respondents was biased, maintaining the anonymity of the participants minimized this threat. The TOOLS identifies individuals' behavioral strengths and weaknesses regarding DL and was an appropriate instrument for this study. Totaling forty-five items, the TOOLS is comprised of five subscales: computer skills, independent learning, dependent learning, need for online delivery, and academic skills. Subscale scores reflect the correlation between the responses to individual statements that reflect a specific behavior and the learning success indices of self-esteem, intrinsic motivation, reading comprehension, and learning styles. Items 14, 22, 23, 24, 25, 26, 27, 36, and 37 are reverse scored and the subscale scores are created by computing the mean across the respective subscale items. The learner's potential online learning success is calculated by summing across all forty-five items (Kerr, Rynearson & Kerr, 2003).

Evaluation of demographic variables is a valid consideration in social research studies within the fields of adult education and training (Merriam & Simpson, 2000). Previous studies examining the efficacy of DL within higher education settings identified gender, race, age, and previous exposure to DL delivery methods as determinant factors in the satisfaction and potential success of participants (Holley, 2002; Roach, 2002; Sakurai, 2002). Willingness to engage in professional
development training may be affected by tenure or educational level of participants (Chan & Auster, 2003). In addition to the variables noted in these previous studies, the developers of the TOOLS identified particular demographic areas that warrant consideration in studies utilizing the instrument. Because Knowles' andragogical concept of intrinsic motivation is closely related to the age of the adult learner, the age of any prospective learner is a valid consideration when attempting to determine the learner's likelihood of success in the DL environment (Kerr, Rynearson & Kerr, 2003). Kerr et al. also determined that significantly more females (M = 4.52, SD = 2.35) than males (M = 3.42, SD = 2.26) were identified as verbal learners, t(178) = 2.54, p = .02; and, significantly more males (M = 7.58, SD = 2.50) than females (M = 6.63, SD = 2.46) were identified as visual learners, t(186) = 2.11, p = .04.

 Appropriately, the TOOLS administered to police officers in this study incorporated the demographic variables of gender, age of the adult learner, number of years of police service, number of years of formal education received, and previous exposure to DL as predictor variables.

**Validity.** Correlation analyses with the learning success predictors of self-esteem, intrinsic motivation, reading comprehension, and learning styles were conducted to measure the validity of the TOOLS in determining learners’ likelihood of success in the DL environment. Total online learning success was significantly related to self-esteem, r(188) = .35, p = .01; intrinsic motivation r(188) = -.17, p = .01; and total comprehension strategy use (reading comprehension combined with learning styles), r(188) = .28, p = .01 (Kerr, Rynearson & Kerr, 2003).
Reliability. Kerr et al. (2003) computed Cronbach Alphas to determine the internal consistency of the TOOLS. Across all forty-five items, alpha = .87 (n = 183), and subscale coefficient alphas ranged from .72 to .89 (n = 183). These results indicate that the TOOLS is a reliable measure of learners’ potential for online learning success.

Phase 3

Because empirical generalizations are often difficult to establish within social science, comprehensive analyses are strengthened through situational evaluations. Merriam and Simpson (2000, p. 103) state, “the extent to which findings from an investigation can be applied to other situations is determined by the people in those situations.” External validity is strengthened through the use of multi-site designs, and the collection of data from six geographic regions of the United States satisfied this criterion. The reliability of qualitative research is dependent upon the consistency of the results with data collected in the instant research and through other sources (Howell, 2002; Merriam & Simpson, 2000).

In addition to the survey data, the third phase of this study utilized an open-ended questionnaire to address considerations of DL delivery methods that were identified through analysis of the current literature. These questionnaires were used to determine contributing factors significant to the learning experiences of the respondents, including the willingness of adults within a police professional development environment to participate in DL. Utilizing information garnered from open-ended questions in combination with the survey results provided a more comprehensive analysis of the feasibility of DL within the parameters of this study.
The questionnaire used for the qualitative phase of this study consisted of five open-ended questions (Appendix C). The questionnaire was printed on the fourth page of the instrument containing the TOOLS. Accordingly, these instruments also were color-coded. However, the questionnaire was a separate and distinct phase of this study. The first four questions for this portion of the study were derived from commonly identified themes within the current literature regarding learners' perception of DL delivery methods and contributing factors significant to the learning experiences of the respondents. The fifth question was an open-ended inquiry to solicit any information that the respondent wished to provide regarding DL delivery methods and police professional development issues which may or may not have been previously addressed or identified as pertinent to this study.

Procedures

Phase 1

FRCPI personnel forwarded anonymous pre- and post-test scores for police training that was offered in both DL and TI formats to the researcher for statistical analysis. This training was conducted within the two areas of Police Ethics and Domestic Violence Response. The pre- and post-test scores of the experimental and control groups were compared to determine whether there were statistically significant differences in learning improvement between police officers who received professional development training via DL versus TI, and whether intentional, as opposed to incidental, learning actually occurred (Nadler & Nadler, 1994). Upon collection of the data from FRCPI, the researcher coded the data and entered it into the SPSS statistical software package for analysis.
Phase 2

The researcher contacted the chief administrative officers of the selected agencies by telephone to solicit their participation in this study. Upon agreement to participate in the study by the chief administrative officers of the selected agencies within the six RISS regions, the survey instrument was mailed to each agency for distribution and completion by participating police officers. In order to determine the response rate from each of the participating agencies, the instruments mailed to each agency were color-coded, with all instruments of like color mailed to the same agency. Each participating agency had 14 days to complete and collect the survey instruments, at which time the instruments were returned to the researcher via pre-paid delivery. Upon collection of the completed instruments, the researcher coded the data and entered it into the SPSS statistical software package for analysis of the criterion variables.

In order to protect the anonymity of the participants, the researcher provided an envelop with each survey instrument administered. Each participant was instructed to place their completed instrument in the envelop and seal it before returning it to the survey administrator. This procedure prevented the possibility of any participant becoming known to administrators or other personnel within their respective employing agencies.

Phase 3

Distribution, completion, and return of the questionnaire was conducted simultaneously with the TOOLS. Accordingly, the questionnaire was mailed with the TOOLS to each participating agency for distribution and completion by participating
police officers. As previously described, the instruments mailed to each agency were color-coded, with all instruments of like color mailed to the same agency. Each participating agency had 14 days to complete and collect the questionnaire, at which time the instruments were returned to the researcher via pre-paid delivery.

Analysis of Data/Statistical Procedures

All statistical analyses were conducted using version 13.0 of the SPSS statistical software package. All returned instruments and responses were maintained by the researcher and will be destroyed one year after completion of the study. The hypotheses tested in each phase of this study and the statistical procedures utilized for the analysis of data are presented.

Phase 1

For the purposes of this study, the following hypotheses were tested in Phase 1:

H1: There is a statistically significant increase in police professional knowledge through the use of training delivered via TI, as determined by comparing pre- and post-test scores of police officers who participate in professional development courses via TI (control group).

H2: There is a statistically significant increase in police professional knowledge through the use of training delivered via DL, as determined by comparing pre- and post-test scores of police officers who participate in professional development courses via DL (experimental group).
H3: There is a statistically significant difference between post-test scores of police officers who participated in professional development training via DL compared to TI, controlling for pre-test scores.

Upon collection of the data, the researcher coded the data and entered it into the SPSS statistical software package for analysis. Paired-samples t-tests were conducted to determine whether police officers who participated in classroom-based versions and online versions of professional development training courses demonstrated a significant improvement in learning based upon pre- and post-test scores (H1 and H2). An ANCOVA was conducted to compare the post-test scores of the police officers who participated in professional development courses via DL controlling for the covariate pre-tests (H3). A significance level of .05 was used for all statistical analyses in this phase of the study.

Phase 2

For the purposes of this study, the following hypotheses were tested in Phase 2:

H4: There is a statistically significant difference between potential completers and non-completers of police professional development training delivered via DL, as measured by total TOOLS scores.

H5: There is a statistically significant relationship between gender and potential online learning success by police officers, as measured by total TOOLS scores.

H6: There is a statistically significant relationship between race and potential online learning success by police officers, as measured by total TOOLS scores.
H7: There is a statistically significant relationship between age and potential online learning success by police officers, as measured by total TOOLS scores.

H8: There is a statistically significant relationship between the number of years of service as a police officer and potential online learning success by police officers, as measured by total TOOLS scores.

H9: There is a statistically significant relationship between educational level and potential online learning success by police officers, as measured by total TOOLS scores.

H10: There is a statistically significant relationship between previous participation in DL and potential online learning success by police officers, as measured by total TOOLS scores.

H11: Gender, race, age, number of years of police service, level of formal education, and previous exposure to DL statistically significantly classify police officers as completers or non-completers of professional development training offered via DL.

Upon collection of the completed instruments, the researcher coded the data and entered it into the SPSS statistical software package for analysis of the criterion variables. A one-sample t-test was conducted to determine if there was a statistically significant difference between potential completers and non-completers of online learning by police officers (H4), as measured by the Test of Online Learning Success (TOOLS). A significance level of .05 was used for the one-sample t-test.

A second component of this phase utilized Pearson product-moment correlations to determine whether the individual variables of gender, race, age of the
adult learner, number of years of police service, number of years of formal education received, and previous exposure to DL were statistically significantly related to the potential online learning success of police officers (H5-H10). In order to control for Type I error, the Bonferroni approach called for a significance level of .002 for the Pearson product moment correlations.

A logistic regression analysis was conducted to classify police officers who potentially will participate in professional development training via DL as completers or non-completers based on gender, race, age of the adult learner, number of years of police service, level of formal education, and previous exposure to DL (H11). A significance level of .05 was used for the logistic regression statistical analyses.

Phase 3

Upon collection of the completed instruments, the researcher identified commonalities regarding police officers’ perceptions of DL delivery methods and relevant police professional development issues. These perceptions were evaluated for their consistency with considerations identified through analysis of the current literature and TOOLS’ data in order to develop a more comprehensive assessment of DL delivery methods within the area of police professional development. Utilizing information garnered from questionnaires in combination with the survey results provided a more comprehensive analysis of the efficacy of DL within the parameters of this study. This information was compiled and reported in narrative form.
CHAPTER IV
ANALYSIS OF DATA

Introduction

The majority of research comparing DL and TI delivery methods has been conducted within traditionally academic settings. Within the field of adult education, there is a need for comparison studies that examine DL’s impact upon learner groups and upon learners’ attitudes. The growing popularity of online classes among police professional development providers and participants provided the impetus for this study. The general purpose of this study was to determine whether or not there were statistically significant differences in learning success of police officers who participated in professional development via DL compared to TI and if these prospective differences were related to various factors. This study also evaluated police officers’ perceptions regarding the use of DL for professional development and the practicality of its application as an appropriate delivery method.

The researcher mailed 631 survey instruments to the police agencies participating in this study. Of the 631 instruments mailed, 188 responses to the Phase 2 instrument and 150 responses to the Phase 3 questionnaire were returned. All analyses in Phases 1 and 2 of this study were conducted using Version 13.0 of the SPSS statistical software package. This chapter contains descriptive data of the participants in this study, results of the tests of hypotheses in Phases 1 and 2, a qualitative analysis of the responses to the Phase 3 questionnaire, and a summary of the major findings.
Descriptive Data

Phase 1

The 11 police officers in the control group, who participated in professional development training via TI, comprised 24% of the sample. The 34 police officers in the experimental group, who participated in professional development training via DL only, amounted to 76% of the sample. Two police officers were dropped from the study, both in the experimental group, due to failure to complete the training and post-test. This reduced the total number of police officers in Phase 1 of this study to 43, with 11 and 32 in the control and experimental groups, respectively. No demographic variables related to gender, race, age, number of years of service as a police officer, educational level, or previous participation in DL were provided to the researcher for either group. Table 1 presents the post-test scores for the experimental and control groups.

Table 1

<table>
<thead>
<tr>
<th>Delivery Method</th>
<th>Post-test Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional Instruction</td>
<td>82.91</td>
<td>18.43</td>
<td>11</td>
</tr>
<tr>
<td>Distance Learning</td>
<td>73.38</td>
<td>21.72</td>
<td>32</td>
</tr>
<tr>
<td>Total</td>
<td>75.81</td>
<td>21.13</td>
<td>43</td>
</tr>
</tbody>
</table>

Phase 2

A total of 188 police officers participated in this portion of the research study, and the response rate from the participating agencies was obtained through a visual examination by the researcher of the colored-coded survey instruments described in
Chapter 3. Twenty seven (14.4%) of the respondents were from the Cuyahoga Falls, OH, Police Department; 10 (5.3%) from the Fargo, ND, Police Department; 30 (16%) from the Southaven, MS, Police Department; 54 (28.7%) from the Ogden, UT, Police Department; 47 (25%) from the Woonsocket, RI, Police Department; and 20 (10.6%) from the Yakima, WA, Police Department.

The majority of the respondents were male (161, 85.6%) and were White (165, 87.8%). The mean age was 36.9 (SD = 8.39), and the mean number of years of police service was 10.41 (SD = 7.75). The majority of respondents listed their level of formal education as “some college” (101, 53.7%), and most (147, 78.2%) had not participated previously in DL. The Phase 2 participants’ descriptive data for gender (Table 2), race (Table 3), age and years of service (Table 4), level of formal education (Table 5), and previous participation in DL (Table 6) are presented in tabular form.

Table 2

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>161</td>
<td>85.6</td>
</tr>
<tr>
<td>Female</td>
<td>17</td>
<td>9.0</td>
</tr>
<tr>
<td>Total</td>
<td>178</td>
<td>94.7</td>
</tr>
<tr>
<td>Missings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>System</td>
<td>10</td>
<td>5.3</td>
</tr>
<tr>
<td>Total</td>
<td>188</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Table 3

**Race of Phase 2 Respondents**

<table>
<thead>
<tr>
<th>Race</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>165</td>
<td>87.8</td>
</tr>
<tr>
<td>Black</td>
<td>7</td>
<td>3.7</td>
</tr>
<tr>
<td>Hispanic</td>
<td>4</td>
<td>2.1</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>2</td>
<td>1.1</td>
</tr>
<tr>
<td>American Indian</td>
<td>2</td>
<td>1.1</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>2.1</td>
</tr>
<tr>
<td>Total</td>
<td>184</td>
<td>97.9</td>
</tr>
<tr>
<td>Missing System</td>
<td>4</td>
<td>2.1</td>
</tr>
<tr>
<td>Total</td>
<td>188</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 4

**Age and Years of Service of Phase 2 Respondents**

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Police Service</td>
<td>184</td>
<td>1.00</td>
<td>35.00</td>
<td>10.41</td>
<td>7.76</td>
</tr>
<tr>
<td>Age</td>
<td>185</td>
<td>23.00</td>
<td>60.00</td>
<td>36.91</td>
<td>8.39</td>
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</table>

Table 5

**Level of Formal Education of Phase 2 Respondents**

<table>
<thead>
<tr>
<th>Education</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>HS/GED</td>
<td>17</td>
<td>9.0</td>
</tr>
<tr>
<td>Some College</td>
<td>101</td>
<td>53.7</td>
</tr>
<tr>
<td>BA/BS</td>
<td>50</td>
<td>26.6</td>
</tr>
<tr>
<td>Some Graduate School</td>
<td>8</td>
<td>4.3</td>
</tr>
<tr>
<td>Adv/Terminal Degree</td>
<td>11</td>
<td>5.9</td>
</tr>
<tr>
<td>Total</td>
<td>187</td>
<td>99.5</td>
</tr>
<tr>
<td>Missing System</td>
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<td>.5</td>
</tr>
<tr>
<td>Total</td>
<td>188</td>
<td>100.0</td>
</tr>
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</table>
Table 6

Previous DL Participation of Phase 2 Respondents

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>145</td>
<td>77.1</td>
</tr>
<tr>
<td>Yes</td>
<td>43</td>
<td>22.9</td>
</tr>
<tr>
<td>Total</td>
<td>188</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Phase 3

A total of 150 police officers participated in this portion of the research study, and the response rate from the participating agencies was obtained through a visual examination by the researcher of the colored-coded survey instruments described in Chapter 3. Seventeen (11.3%) of the respondents were from the Cuyahoga Falls, OH, Police Department; eight (5.3%) from the Fargo, ND, Police Department; 25 (16.7%) from the Southaven, MS, Police Department; 43 (28.7%) from the Ogden, UT, Police Department; 38 (25.3%) from the Woonsocket, RI, Police Department; and 19 (12.7%) from the Yakima, WA, Police Department.

The majority of the respondents were male (127, 84.7%) and were White (131, 87.3%). The mean age was 37.2 (SD = 8.51), and the mean number of years of police service was 10.75 (SD = 8.09). The majority of respondents listed their level of formal education as “some college” (78, 52%), and most (113, 75.3%) had not participated previously in DL. The Phase 3 participants’ descriptive data for gender (Table 7), race (Table 8), age and years of service (Table 9), level of formal education (Table 10), and previous participation in DL (Table 11) are presented in tabular form.
Table 7

**Gender of Phase 3 Respondents**

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency</th>
<th>Percent</th>
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</thead>
<tbody>
<tr>
<td>Male</td>
<td>127</td>
<td>84.7</td>
</tr>
<tr>
<td>Female</td>
<td>15</td>
<td>10.0</td>
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<tr>
<td>Total</td>
<td>142</td>
<td>94.7</td>
</tr>
<tr>
<td>Missing System</td>
<td>8</td>
<td>5.3</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 8

**Race of Phase 3 Respondents**

<table>
<thead>
<tr>
<th>Race</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>131</td>
<td>87.3</td>
</tr>
<tr>
<td>Black</td>
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<td>3.3</td>
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<tr>
<td>Hispanic</td>
<td>4</td>
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<tr>
<td>Asian/Pacific Islander</td>
<td>2</td>
<td>1.3</td>
</tr>
<tr>
<td>American Indian</td>
<td>2</td>
<td>1.3</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>2.0</td>
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<tr>
<td>Total</td>
<td>147</td>
<td>98.0</td>
</tr>
<tr>
<td>Missing System</td>
<td>3</td>
<td>2.0</td>
</tr>
<tr>
<td>Total</td>
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<td>100.0</td>
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</table>

Table 9

**Age and Years of Service of Phase 3 Respondents**

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<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
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<td>1.00</td>
<td>35.00</td>
<td>10.75</td>
<td>8.09</td>
</tr>
<tr>
<td>Age</td>
<td>149</td>
<td>23.00</td>
<td>60.00</td>
<td>37.19</td>
<td>8.51</td>
</tr>
</tbody>
</table>
Table 10

Level of Formal Education of Phase 3 Respondents

<table>
<thead>
<tr>
<th>Level of Formal Education</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>HS/GED</td>
<td>11</td>
<td>7.3</td>
</tr>
<tr>
<td>Some College</td>
<td>78</td>
<td>52.0</td>
</tr>
<tr>
<td>BA/BS</td>
<td>41</td>
<td>27.3</td>
</tr>
<tr>
<td>Some Graduate School</td>
<td>8</td>
<td>5.3</td>
</tr>
<tr>
<td>Adv/Terminal Degree</td>
<td>11</td>
<td>7.3</td>
</tr>
<tr>
<td>Total</td>
<td>149</td>
<td>99.3</td>
</tr>
<tr>
<td>Missing System</td>
<td>1</td>
<td>.7</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 11

Previous DL Participation of Phase 3 Respondents

<table>
<thead>
<tr>
<th>Participation</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>113</td>
<td>75.3</td>
</tr>
<tr>
<td>Yes</td>
<td>37</td>
<td>24.7</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Tests of Hypotheses

For the purposes of this study, the following hypotheses were tested:

*Phase 1*

H1: There is a statistically significant increase in police professional knowledge through the use of training delivered via TI, as determined by comparing pre- and post-test scores of police officers who participate in professional development courses via TI (control group).

A paired-samples t-test was conducted to determine whether police officers who participated in professional development training courses delivered via TI demonstrated a statistically significant improvement in learning based upon pre- and
post-test scores. The analysis indicated that the TI post-test scores ($M = 82.91, SD = 18.43$) were significantly higher than the TI pre-test scores ($M = 43.27, SD = 17.96$), and that there was a statistically significant increase in TI post-test scores compared to pre-test scores, $t(10) = -5.46, p < .001$. Hypothesis 1 was supported.

H2: There is a statistically significant increase in police professional knowledge through the use of training delivered via DL, as determined by comparing pre- and post-test scores of police officers who participate in professional development courses via DL (experimental group).

A paired-samples t-test was conducted to determine whether police officers who participated in professional development training courses delivered via DL demonstrated a statistically significant improvement in learning based upon pre- and post-test scores. The analysis indicated that the DL post-test scores ($M = 73.38, SD = 21.72$) were significantly higher than the DL pre-test scores ($M = 47.44, SD = 16.74$), and that there was a statistically significant increase in DL post-test scores compared to pre-test scores, $t(31) = -7.54, p < .001$. Hypothesis 2 was supported.

H3: There is a statistically significant difference between post-test scores of police officers who participated in professional development training via DL compared to TI, controlling for pre-test scores.

A one-way analysis of covariance (ANCOVA) was conducted to determine if there was a statistically significant difference in the post-test scores of the police officers who participated in professional development training via DL compared to TI, controlling for pre-test scores. The independent variable, delivery method,
included two groups: traditional instruction (TI) and distance learning (DL). The dependent variable was post-test scores and the covariate was the pre-test scores.

A preliminary evaluation of the homogeneity-of-slopes assumption for an ANCOVA indicated that the relationship between the covariate and the dependent variable did not differ significantly as a function of the independent variable, $F(1, 39) = 1.90, p = .18$. The ANCOVA revealed no statistically significant difference in the effectiveness of the two delivery methods, $F(1, 40) = 2.99, p = .09$. Hypothesis 3 was not supported.

Phase 2

H4: There is a statistically significant difference between potential completers and non-completers of police professional development training delivered via DL, as measured by total TOOLS scores.

A one-sample t-test was conducted to determine if there is a significant difference between potential completers and non-completers of police professional development training delivered via DL, as measured by total TOOLS scores. The test value was 178, and the t-test ($M = 176.85, SD = 21.71$) results indicated that there was not a statistically significant difference between potential completers and non-completers, $t(187) = -.726, p = .469$. Hypothesis 4 was not supported.

H5: There is a statistically significant relationship between gender and potential online learning success by police officers, as measured by total TOOLS scores.
The correlation between gender and potential online learning success by police officers was not statistically significant, $r(176) = -.03, p = .726$. Hypothesis 5 was not supported.

H6: There is a statistically significant relationship between race and potential online learning success by police officers, as measured by total TOOLS scores.

The correlation between race and potential online learning success by police officers was not statistically significant, $r(182) = -.01, p = .929$. Hypothesis 6 was not supported.

H7: There is a statistically significant relationship between age and potential online learning success by police officers, as measured by total TOOLS scores.

The correlation between age and potential online learning success by police officers was not statistically significant, $r(183) = -.01, p = .361$. Hypothesis 7 was not supported.

H8: There is a statistically significant relationship between the number of years of service as a police officer and potential online learning success by police officers, as measured by total TOOLS scores.

The correlation between the number of years of service as a police officer and potential online learning success by police officers was not statistically significant, $r(182) = -.01, p = .875$. Hypothesis 8 was not supported.

H9: There is a statistically significant relationship between level of formal education and potential online learning success by police officers, as measured by total TOOLS scores.
The correlation between educational level and potential online learning success by police officers was statistically significant, \( r(185) = .23, p = .001 \). Hypothesis 9 was supported.

H10: There is a statistically significant relationship between previous participation in DL and potential online learning success by police officers, as measured by total \textit{TOOLS} scores.

The correlation between previous participation in DL and potential online learning success by police officers was not statistically significant, \( r(186) = .13, p = .081 \). Hypothesis 10 was not supported.

Pearson product-moment correlations were computed to determine whether there is a relationship between the potential for online learning success (OLS) by police officers and the individual independent variables of gender, race, age of the adult learner, number of years of police service, level of formal education received, and previous exposure to DL delivery methods. Table 12 provides the intercorrelation matrix. Using the Bonferroni approach to control for Type I error across the 21 correlations, a \( p \) value of .002 was required for significance. The correlation between age and years of police service was statistically significant, \( r(178) = .78, p < .001 \), and was of no surprise to the researcher. It stands to reason that the age of the respondent will correlate with the number of years of police service. The correlation between educational level and potential OLS was statistically significant, \( r(185) = .23, p = .001 \). This correlation indicates that an increase in educational level is associated with an increase in potential online learning success by police officers.
Table 12

*Phase 2 Intercorrelation Matrix*

<table>
<thead>
<tr>
<th></th>
<th>Gender</th>
<th>Police Service</th>
<th>Age</th>
<th>Race</th>
<th>Education</th>
<th>Previous DL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Police Service</td>
<td></td>
<td>-.059</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-.089</td>
<td>.782*</td>
<td></td>
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<tr>
<td>Race</td>
<td>-.036</td>
<td>-.126</td>
<td>-.045</td>
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<td></td>
</tr>
<tr>
<td>Education</td>
<td>.208</td>
<td>.081</td>
<td>.127</td>
<td>-.097</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Previous DL</td>
<td>-.136</td>
<td>.064</td>
<td>.139</td>
<td>.043</td>
<td>.152</td>
<td></td>
</tr>
<tr>
<td>OLS</td>
<td>-.026</td>
<td>.012</td>
<td>-.068</td>
<td>-.007</td>
<td>.234*</td>
<td>.128</td>
</tr>
</tbody>
</table>

*Correlation is significant at the 0.002 level (2-tailed).*
H11: Gender, race, age, number of years of police service, level of formal education, and previous exposure to DL statistically significantly classify police officers as completers or non-completers of professional development training offered via DL.

A logistic regression analysis was conducted to classify police officers who potentially will participate in professional development training via DL as completers or non-completers based on gender, race, age of the adult learner, number of years of police service, level of formal education, and previous exposure to DL. Since gender, race, level of formal education, and previous exposure to DL were categorical variables, they were analyzed as such in SPSS. Regression results indicate that the overall model fit of the six predictors was poor (-2 Log Likelihood = 207.30), but was statistically significant in distinguishing online learning success, Hosmer and Lemeshow $X^2 (8) = 16.72, p < .033$. The overall model correctly classified only 66.5% of the total cases. Approximately 13.3% of the variance in predicting potential success of police officers in DL is accounted for by the combination of predictors, based on Cox and Snell $R^2$. The combined effects of the independent variables indicated a poorly fitting statistical model and are presented in Table 13.
Table 13

*Phase 2 Logistic Regression - Variables in the Equation*

<table>
<thead>
<tr>
<th>Step 1(a)</th>
<th>Wald</th>
<th>df</th>
<th>Sig.</th>
<th>Exp(B)</th>
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<tr>
<td>gender(1)</td>
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<td>1</td>
<td>.309</td>
<td>1.833</td>
</tr>
<tr>
<td>Tenure</td>
<td>.033</td>
<td>1</td>
<td>.856</td>
<td>1.007</td>
</tr>
<tr>
<td>Age</td>
<td>.704</td>
<td>1</td>
<td>.401</td>
<td>.970</td>
</tr>
<tr>
<td>Race</td>
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<td>5</td>
<td>.772</td>
<td></td>
</tr>
<tr>
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<td>race(3)</td>
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<td>.999</td>
<td>.000</td>
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<td>.029</td>
<td>.091</td>
</tr>
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<td>educ(3)</td>
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<td>.088</td>
<td>.151</td>
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<tr>
<td>educ(4)</td>
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<td>.376</td>
<td>.295</td>
</tr>
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<td>priordl(1)</td>
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<td>1</td>
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<td>.488</td>
</tr>
<tr>
<td>Constant</td>
<td>4.127</td>
<td>1</td>
<td>.042</td>
<td>53.439</td>
</tr>
</tbody>
</table>

a Variable(s) entered on step 1: gender, tenure, age, race, educ, priordl.
Qualitative Analysis

*Phase 3*

The open-ended questions used during Phase 3 of this study are restated below and the information obtained is presented.

**Question One:** *What do you like most about distance learning for police professional development training? If you have never participated in professional development training via DL, what do you think you would like most?*

Of the 150 participants in Phase 3 of this study, 134 (89.3%) responded to this question. The majority of respondents (92, 68.7%) cited general convenience and the scheduling flexibility that was afforded by DL as the thing they liked most. Of these, 33 (24.6%) stated that the specific convenience factor most important to them was the ability to access educational opportunities from remote locations. Of the remaining 42 respondents, 34 (25.4%) liked the ability to work at their own pace. Four (3.0%) respondents felt that DL broadens the learner base and increases their educational opportunities by providing a greater diversity of ideas, while three (2.2%) felt that the use of DL provides increased opportunities and resources for research within specific topic areas. Increased educational opportunities made available through the cost-effectiveness of DL were cited by two (1.5%) respondents. Four (3.0%) respondents stated simply that they found DL to be “enjoyable,” and 11 (8.2%) said they liked nothing about the delivery method.

**Question Two:** *What do you dislike most about distance learning for police professional development training? If you have never participated in professional development training via DL, what do you think you would dislike the most?*
Of the 150 participants in Phase 3 of this study, 119 (79.3%) responded to this question. Some respondents cited multiple factors or considerations of DL that they disliked. The majority of respondents (63, 52.9%) cited the lack of personal interaction or face-to-face contact with the facilitator or other learners as the thing they disliked most. Eleven (9.2%) respondents disliked the technology or doubted its dependability. The need for “hands-on” training and the inability of DL to provide practical application of training within law enforcement was cited by 10 (8.4%) respondents. Five (4.2%) respondents said that DL is not as effective as TI, and two (1.7%) discounted the credibility of DL, stating that it is “not real education” because it does not improve critical thinking skills. Nine (7.6%) respondents felt that they lacked the self-discipline or motivation required to successfully participate in professional development training via DL, and eight (6.7%) said that because their agency would expect them to participate in training during non-work hours, DL would take away too much time from their personal lives and families. Twelve (10.1%) respondents said they disliked nothing about the delivery method.

Question Three: If you had to choose, which method would you choose: distance learning or traditional instruction? Why?

Of the 150 participants in Phase 3 of this study, 144 (96%) responded to this question. The majority of respondents (79, 54.9%) chose TI as their preferred method, 53 (36.8%) chose DL, and 12 (8.3%) had no preference.

Of the 79 respondents who chose TI as their preferred method, 41 (51.9%) cited the lack of interaction with the facilitator or other learners in DL environments, 14 (17.7%) said they were more familiar with TI, seven (8.9%) felt that police
training should be “hands-on,” and two (2.6%) preferred to use work time rather than personal time to obtain professional development training. Fifteen (18.9%) respondents who chose TI gave no reason for their preference.

Of the 53 respondents who chose DL as their preferred method, 43 (81.1%) said they liked the flexibility and convenience of DL, four (7.6%) liked the self-paced nature of DL, three (5.7%) liked the accessibility to educational opportunities from remote locations, and one (1.9%) cited the cost-effectiveness of DL as the primary consideration. Two (3.8%) respondents who chose DL gave no reason for their preference.

Question Four: Do you feel that DL is an appropriate method for delivery of police professional development training? Why or why not?

Of the 150 participants in Phase 3 of this study, 140 (93.3%) responded to this question. The majority of respondents (95, 67.9%) said that DL is an appropriate method of delivery for police professional development training, 22 (15.7%) said that it is not, and 23 (16.4%) said that its appropriateness depends on the particular subject area for which it is used.

Of the 95 respondents who said that DL is an appropriate delivery method, 53 (55.8%) cited the convenience and flexibility of DL, particularly in consideration of the irregular schedule of many police officers, and seven (7.4%) said that DL can be especially successful as a delivery method for police professional development due to the autonomous nature and self-discipline of most police officers. As noted by one respondent, “Police officers are self-motivated, so DL comes naturally.” Two (2.1%) respondents said that police officers should avail themselves of DL opportunities in
order to better prepare themselves for modern adult roles regarding the use of technology, and two (2.1%) cited the cost-effectiveness of DL. Thirty-one (32.6%) respondents who said DL was an appropriate delivery method gave no reason for their position.

Of the 22 respondents who said that DL is not an appropriate delivery method, eight (34.8%) felt simply that DL is not effective. Four (2.2%) respondents cited the need for “hands-on” training, two (8.7%) said that there is too much opportunity for learners to “cheat,” and one (4.3%) cited the lack of interaction with facilitators. Seven (30.4%) respondents who said DL was not an appropriate delivery method gave no reason for their position.

Question Five: Please provide any comments you feel are pertinent regarding the use of DL for delivery of police professional development training or other issues pertinent to police training (what types of training are most appropriate for the use of DL, administrative support for police training, appropriate frequency of police training, etc.).

Of the 150 participants in Phase 3 of this study, 44 (29.3%) responded to this question. The most common response (25, 56.8%) regarding the use of DL for delivery of police professional development training was that it provides increased training opportunities and is appropriate within specific topic areas. Six (13.6%) respondents felt that the police department should provide DL facilities and allow time to access DL opportunities during working hours. Five (11.4%) respondents expressed concern that course integrity cannot be ensured through the use of DL and that participants would “cheat.” They felt that this may cause some police agencies to
not accept training offered via DL. Four (9.1%) respondents thought that DL should be used to complement, not replace, TI. Two (4.6%) noted the cost-effectiveness of DL, while one (2.3%) respondent would rather see training monies used to increase the number of TI offerings and facilities.

Of the respondents who offered comments regarding the use of DL within specific topic areas, 17 (68%) said that DL is appropriate for legal updates, five (20%) said it is appropriate for management training, and one (4%) said that it should be used for critical incident command post training in the post-911 era. One (4%) respondent said that DL is appropriate for “any course not requiring hands-on” training, and one (4%) said that DL should be used for “in-service training updates but never for basic recruit training.” Additionally, one (4%) respondent said, “I see no reason not to use DL to develop all sorts of training!”

Summary

Hypotheses 1 and 2 were tested using a paired-samples t-test to determine whether police officers who participated in professional development training courses delivered via TI and DL demonstrated a statistically significant improvement in learning based upon pre- and post-test scores. The t-test results indicated that the TI post-test scores ($M = 82.91, SD = 18.43$) were significantly higher than the TI pre-test scores ($M = 43.27, SD = 17.96$), $t(10) = -5.46, p < .001$. The t-test results also indicated that the DL post-test scores ($M = 73.38, SD = 21.72$) were significantly higher than the DL pre-test scores ($M = 47.44, SD = 16.74$), $t(31) = -7.54, p < .001$. This indicates that learning was taking place in the training courses regardless of the delivery method.
Hypothesis 3 was tested using an analysis of covariance (ANCOVA) to determine whether there is a statistically significant difference between learning improvement of police officers who participate in professional development training via DL compared to TI. The ANCOVA revealed no statistically significant difference in the effectiveness of the two delivery methods, $F(1, 40) = 2.99, p = .09$.

Hypothesis 4 was tested using a one-sample t-test to determine if there is a significant difference between potential completers and non-completers of police professional development training delivered via DL, as measured by total TOOLS scores. The t-test ($M = 176.85, SD = 21.71$) results indicated that there was not a statistically significant difference between potential completers and non-completers, $t(187) = -.726, p = .469$. Hypothesis 4 was not supported.

Hypotheses 5, 6, 7, 8, 9, and 10 were tested to determine how well the individual variables of gender, race, age, number of years of police service, level of formal education, and previous exposure to DL delivery methods predicted potential online learning success by police officers participating in professional development training. Only the correlation between educational level and the potential online learning success was statistically significant, $r(185) = .23, p = .001$; therefore, only Hypothesis 9 was supported.

Hypothesis 11 utilized a logistic regression analysis to classify police officers as completers or non-completers of online training based on the combined effects of the independent variables and indicated a poorly fitting statistical model. Hypothesis 11 was not supported.
The results of the qualitative analysis indicated that the majority of respondents cited general convenience and the scheduling flexibility that was afforded by DL as the thing they liked most and the lack of personal interaction or face-to-face contact with the facilitator or other learners as the thing they disliked most. Most respondents chose TI as their preferred method and cited the lack of interaction with the facilitator or other learners in DL environments as their primary consideration. Of those respondents who chose DL as their preferred method, the overwhelming majority said they liked the flexibility and convenience of DL.

Interestingly, although most police officers in the study said they preferred TI, the majority felt that DL is an appropriate delivery method for police professional development. Several respondents stated that the use of DL for delivery of police professional development training provides increased training opportunities and that it is appropriate within specific topic areas such as legal updates or management training.
CHAPTER V
CONCLUSIONS, DISCUSSION, AND RECOMMENDATIONS

American policing has evolved from the guiding philosophy of crime control to the modern perspective of quality-of-life improvement for citizens, with a training regimen reflective of the prevailing societal applications of the profession. This evolution of police service has created an expectation for better educated and more professional police officers. In order to meet the public safety demands of contemporary society, police administrators and trainers must develop innovative approaches that prepare and empower law enforcement personnel to keep pace with increasing operational requirements. Over the last several years, the use of online professional training has expanded to meet the needs of nontraditional learners often found within police service. However, virtually no empirical studies exist that evaluate the efficacy of online delivery methods within the field of police professional development.

Purpose of Study

The general purpose of this study was to assess the efficacy and feasibility of DL as it applies to police officers within the area of professional development. Within the field of police professional development, the few authors who addressed the efficacy of DL provided nothing beyond a limited offering of self-reported measures of learner satisfaction, and the scholarship on adult learning principles is almost nonexistent (Birzer, 2004). None of the existing literature provided any empirical data to demonstrate the efficacy of andragogical techniques compared to pedagogical approaches. The purpose of this study was to assess the efficacy of DL delivery
methods within the field of police professional development and to assess that
efficacy as it relates to various demographic factors of police officers. The results of
this study will assist directors, administrators, curriculum developers and planners,
and staff in determining resource allocations and other factors regarding curriculum
development relevant to police professional development.

This study examined historical police professional development test scores in
an attempt to determine if police officers who participated in professional
development training via DL actually increased their professional knowledge as a
result of the educational activity, and, if so, how that increase in professional
knowledge compared to that of police officers who participated via TI. This study
also sent survey instruments to representative police departments in each of six
geographical regions of the United States. These questionnaires were administered to
188 police officers in an attempt to assess their potential for online learning success
and to determine if there was a statistically significant relationship between various
demographic factors and the likelihood of successful completion of professional
development courses via DL. Finally, this study used a questionnaire containing five
open-ended questions derived from commonly identified themes within the current
literature to solicit any information that respondents wished to provide regarding DL
delivery methods and police professional development issues which may or may not
have been previously addressed or identified as pertinent to this study.
Summary of Major Findings

The analysis of the data-related reports for testing the hypotheses is presented in Chapter 4. Based upon the findings, and within the limitations of the study, a summary of the results of testing the stated hypotheses follows.

The results of this study indicated that police professional development conducted by FRCPI via TI showed a statistically significant increase in TI post-test scores compared to pre-test scores. The results also indicated that there was a statistically significant increase in FRCPI DL post-test scores compared to pre-test scores. This study revealed no statistically significant difference in the effectiveness of DL compared to TI. Although this study revealed no statistically significant difference between the delivery methods, the difference in learning improvement of police officers who participated in FRCPI professional development courses via DL compared to TI approached significance. This issue is discussed elsewhere in this chapter. While the finding of no statistically significance between the delivery methods is consistent with the results of similar studies within the field of higher education, the researcher is skeptical of the results of this area of this study due to the low sample size of the control and experimental groups.

Considering whether police officers, in general, demonstrated potential for success in an online environment, this study revealed no statistically significant difference between potential completers and non-completers of police professional development training delivered via DL, as measured by total TOOLS scores. However, this study also examined how well the individual variables of gender, race, age of the adult learner, number of years of police service, number of years of formal
education received, and previous exposure to DL delivery methods predicted the likelihood of successful completion of professional development courses by police officers who participate via DL. That analysis revealed that while there was no statistically significant relationship between potential online learning success by police officers and the individual variables of gender, race, age of the adult learner, number of years of police service, and previous exposure to DL delivery methods, the level of formal education is a statistically significantly associated with the potential success of police officers participating via DL. The relationship between potential online learning success and previous exposure to DL approached statistical significance and is worthy of additional discussion; this relationship is addressed elsewhere in this chapter. The logistic regression analysis poorly classified police officers who potentially will participate in professional development training via DL as completers or non-completers based on gender, race, age of the adult learner, number of years of police service, level of formal education, and previous exposure to DL.

Analysis of the responses to the open-ended questionnaire indicated that general convenience, the scheduling flexibility that was afforded by DL, the access to educational opportunities from remote locations, and the ability to work at one’s own pace were the most attractive factors when considering the attributes of DL. The lack of personal interaction or face-to-face contact with the facilitator or other learners was the least attractive factor. Respondents also cited general displeasure with the technology or skepticism of its dependability and the inability of DL to provide the practical “hands-on” aspect requisite of law enforcement training. Many respondents
also felt that utilizing DL for professional development would take away too much of their personal time.

The majority of respondents chose TI as their preferred delivery method, citing familiarity with TI and the lack of face-to-face interaction when participating via DL as the primary considerations. The reasons cited by those who preferred DL were consistent with responses to other questions and touted convenience as the most influential factor affecting their preference. Interestingly, the majority of respondents said that DL is an appropriate method of delivery for police professional development training, also citing the convenience factor. Of those who did not say that DL is appropriate, almost half responded that its appropriateness depends on the particular subject area. This response is especially pertinent considering the responses to the open-ended question that attempted to solicit any information regarding issues which may or may not have been previously addressed or identified as pertinent to this study. The most common response to that question was that DL provides increased training opportunities and is appropriate within specific topic areas. Consistent with some previous responses regarding the belief that utilizing DL for professional development would take away too much of their personal time, several respondents felt that police agencies should provide DL facilities and allow time to access DL opportunities during working hours.

Discussion and Implications

The professional development literature disclosed several considerations regarding the use and effectiveness of professional development training. Additionally, the literature regarding the efficacy of DL versus TI revealed particular
considerations relative to each of the respective delivery methods. Consideration of these factors provided the basis for the design of this study.

Phase 1 of this study satisfied the requirement that the efficacy of particular educational delivery methods should be contingent upon the data indicating that learning actually occurred. These results are critical to any assessment of professional development training and are consistent with Knowles’ (1980, p. 19) emphasis that the purpose of adult education is to provide adults with an avenue to “acquire knowledge [and skills...] in the context of its application.” To consider the effectiveness of any educational endeavor or method without examining learning accomplishment is inadequate, and Phase 1 established the credibility of subsequent analyses in this study by adhering to this standard.

The FRCPI data revealed no statistically significant difference in the effectiveness of professional development training offered via DL compared to TI. Similarly, TOOLS data indicated that there was not a statistically significant difference between potential completers and non-completers of police professional development training delivered via DL. It is relevant to note, however, that the difference in the FRCPI scores approached statistical significance at a level of $p = .09$, and that the TI post-test scores ($M = 82.91, SD = 18.43$) were higher than the DL post-test scores ($M = 73.38, SD = 21.72$). A statistically significant difference in favor of TI would further support the Phase 3 findings that while DL may be appropriate for some types of police training, its applications may be limited, and DL should be used to complement, not replace, TI.
Consideration of Weigel's (2000) assertion that traditional instruction should not be the measure against which all new and emerging methods are compared might lead one to surmise that this study may simply exacerbate a seemingly interminable debate. However, Russell's (1999, p. viii) observation that "more than one medium will produce adequate learning results" seemingly is bolstered by the results in Phase 3 of this study, in which the majority of respondents said that DL is an appropriate delivery method, but most actually preferred TI. These diverse positions support the notion that professional development training is best achieved through a comprehensive approach that incorporates the varying needs of individual learners in consideration of particular subject matter and in conjunction with other factors.

But, what are these considerations and how are they best addressed? Mattran (1981, p. 49) noted that effective professional education should offer educational alternatives that provide minimal disruption of participants' professional lives and present programs that are "more attractive in content and format" than previous forms. Drucker (1997) said that in order to reach the goal of improvement and self-perpetuation, organizations must adopt new philosophies toward meeting their respective missions and institute modern methods of training. The underpinning of all these points for successful organizational operation is the need to institute a vigorous and innovative program of professional development. Accordingly, this study attempted to determine the potential success of police officers who participate in professional development training via DL and whether that potential success was related to various demographic factors.
Based upon the findings in Phases 1 and 2 that no statistically significant difference exists between DL and TI, or between completers and non-completers of DL, either delivery method apparently will suffice. This position that police officers engaged in professional development training are no more likely to succeed with one method than they are with another might be valid if adult educational endeavors occurred devoid of other considerations, but they do not. Recognition of the social element of adult education and the overall environment in which professional development training occurs makes a comprehensive assessment of training techniques and delivery methods necessary. It is appropriate, therefore, to comprehensively assess TOOLS scores in combination with the other factors considered in this study.

While the historical data revealed no statistically significant difference between learning improvement via DL compared to TI, the FRCPI results demonstrate that police professional development training delivered via DL can, and does, work. The majority of the Phase 3 respondents stated that although they preferred TI, they did feel that DL is an appropriate delivery method for police training in some circumstances and for particular subject areas. This position is consistent with Knowles’ (1980, p. 45) andragogical assumptions of adults’ readiness to apply educational endeavors to their adult roles, and their orientation of learning toward “subject-centeredness.”

Accordingly, consideration of the efficacy of DL should include evaluation of the delivery method as it relates to the various demographic characteristics of potential participants. In this light, the revelation made by this study of the
relationship between formal educational level and potential online learning success has tremendous implications. If the use of DL for police training is increasing, and the current literature indicates that it is, police agencies that use or may consider using DL to meet professional development requirements apparently would realize the greatest return on their training-investment dollar by employing police officers with higher levels of post-secondary education. Similarly, police agencies employing minimal numbers of officers with post-secondary education or officers with minimal levels of higher education might be well-advised to utilize more traditional delivery methods for training their respective personnel. Fiscal responsibility and accountability to taxpayers warrants consideration of this factor as police administrators and trainers evaluate and develop professional development offerings.

As mentioned previously, the correlation between previous participation in DL and potential online learning success by police officers approached statistical significance at a level of $p = .081$, and warrants additional discussion. Previous studies examining the efficacy of DL identified previous exposure to DL delivery methods as a determinant factor in the satisfaction and potential success of participants (Holley, 2002; Roach, 2002; Sakurai, 2002). The researcher believes that this assertion has merit and that low response rate in this study may have impeded the statistical analysis. Indeed, only 43 respondents had participated in DL, and several Phase 3 respondents stated that they disliked DL because they lacked familiarity with the delivery method. Although the analysis did not reach statistical significance, it should be considered with regard to professional development planning and as a focus of subsequent research.
Many police officers in this study felt that DL was not an appropriate delivery method in consideration of the “hands-on” component often found in police training. While some police training obviously falls within this category, many types of “hands-on” training could be readily complemented through the use of DL to provide training in legal updates, management skills, critical incident command, and a host of other “academic” subject areas. Such an approach, while not totally eliminating the need for traditional face-to-face instruction, would further expand the appropriate applications of DL delivery methods and provide even greater savings of training resources.

In the review of related literature it was discussed that responsible adult educators must find ways to maximize the benefits of emerging technology while anticipating potential impediments to learning and working to minimize their negative effects. Recognition of learners’ accessibility to instructional material from remote locations and the convenience of accessing the material at times most advantageous to the hectic schedules of police officers is one method of maximizing these benefits. Such convenience is certainly a factor worth considering in light of the current manpower constraints of many public safety agencies, and the ability to participate in training at times that do not adversely affect staffing would be a tremendous benefit. The delivery of educational materials through DL can provide tremendous savings of professional development resources. The use of DL can, in many cases, eliminate the need for officers to attend out-of-town training, or at least greatly reduce the frequency of that necessity.
The concern by police officers that utilizing DL for professional development would intrude too much on their personal time demonstrates their recognition of the integration of their professional lives into the broader spectrum of their adult roles. For adults, education does not occur in a vacuum; adults can, and do, consider their educational endeavors in respect to other pertinent aspects of their lives. Brockett (1992) makes the point that mandatory continuing education violates the central principles of adult education, and that mandates regarding participation undermine adult education's effectiveness by creating punitive attitudes toward the endeavor. Mandatory adult education often results in anger, a lack of motivation, and a feeling of disenfranchisement. Professional education that fosters negative attitudes is potentially more detrimental to organizations than no training at all. While some amount of professional development training is essential for organizational effectiveness, police administrators and trainers would be well-advised to minimize the intrusion of requisite professional development training into the personal time of their officers.

Comprehensive evaluation of the results of this study bolster Knowles' (1980) argument that andragogy and pedagogy exist alongside each other as alternative models that each fit within particular situations. As individuals progress through advanced levels of higher education, they presumably move closer to the assumption of traditional adult roles. These individuals, therefore, seemingly would be more attuned to andragogical approaches to education. Accordingly, one might be tempted to argue that if a positive correlation exists between educational level and success in DL, and if learners move toward "andragoginess" as they progress through higher...
education, a correlation also potentially exists between DL success and andragogical
approaches. Such a correlation would imply that DL might be a better “fit” within
adult education endeavors. Conversely, some respondents in this study advocate the
use of DL in certain “academic” topic areas that lend themselves to teacher-centered
instructional techniques with a top-down educational approach. This position implies
that DL is more appropriately used within educational situations that do not subscribe
to Knowles’ andragogical assumptions, i.e., pedagogical approaches. Rather than
viewing these seemingly disparate positions as dichotomous, the results of this study
provide a practical perspective for considering the appropriateness of various
educational approaches within professional development.

This study found no statistical evidence to suggest that DL provided a more
effective delivery method for police professional development than TI. The
researcher’s findings are very much in line with previous studies within higher
education that also have found no statistically significant difference between the
delivery methods. Police administrators and trainers should not lend DL more
credence than it is due. Although comprehensive assessment indicates several
apparent and potential benefits of DL, it has not and will not replace the face-to-face
facilitator. However, the results of this study indicate that DL can complement
traditional offerings and is appropriate with certain individuals within police
professional development settings and in certain subject areas. The question now
becomes how best to utilize the technology to provide the greatest benefit. If police
administrators and trainers can use DL to provide wider curriculum choices to greater
numbers of learners, DL will find its legitimate place within police professional
development. But the primary considerations regarding the implementation and proliferation of DL within the law enforcement training community are caution and careful planning. Administrators and trainers must resist the impulse to embrace DL as a panacea to rising costs and other impediments to requisite training. Instead, they should carefully evaluate its appropriate use in order to develop the areas in which DL provides the greatest benefits.

Limitations

1. The police officers in the control and experimental groups of Phase 1 were not randomly selected. Placement in the control and experimental groups was determined by the police officers selecting the desired delivery method.

2. The researcher had no control over the number of police officers in either the control or experimental groups of Phase 1. The number of police officers in the control and experimental groups was determined by the number of officers who selected the respective delivery methods. The low number of officers in the respective groups was potentially problematic.

3. The researcher had no control over the duration and quality of instruction provided to police officers in the control and experimental groups in Phase 1.

4. The pre- and post-tests utilized in Phase 1 were not designed by the researcher, and the researcher had no knowledge or control regarding the validity or reliability of the instruments.

5. Although the developers of the TOOLS determined its validity based upon statistically significantly relationships between online learning success and self-esteem, \( r(188) = .35, p = .01 \); intrinsic motivation, \( r(188) = -.17, p = .01 \); and total
comprehension strategy, \( r(188) = .28, p = .01 \) (Kerr, Rynearson & Kerr, 2003); the correlation indexes are low.

6. The overall response rate and the response rates within some of the individual police agencies participating in Phases 2 and 3 were minimal (one agency's response rate was less than 10%). Therefore, the researcher was uncertain as to how responses from the non-participants might have affected the statistical model.

7. Phases 2 and 3 of this study were limited to municipal police officers. Although this category of police personnel comprise 74% of all public law enforcement agencies within the United States (Bohm & Haley, 2007), the results may not be generalizable to all types of law enforcement personnel.

8. Phase 3 of this study was limited to written responses to prepared open-ended questions. Higher response rates and more detailed responses may have been obtained through face-to-face or telephonic interviews, or through the use of follow-up questions to various responses.

Recommendations

This study utilized quasi-experimental, correlational, and qualitative designs to examine the efficacy of distance learning compared to traditional instruction within the field of police professional development. During the course of this study, the researcher made discoveries and developed insights that will be beneficial to future researchers of DL. The following recommendations are made as a result of this study:

1. It is recommended that future research to determine whether there are statistically significant differences in learning improvement between police officers who received professional development training via DL compared to TI utilizes an
experimental design. Such research should incorporate random assignment to the experimental and control groups, similar sample sizes between the experimental and control groups, and other factors consistent with experimental design.

2. It is recommended that future research to determine whether there are statistically significant differences in learning improvement between police officers who received professional development training via DL compared to TI ensuring equity regarding the duration and quality of instruction provided to police officers in the control and experimental groups, and takes appropriate steps to ensure the validity of reliability of all testing instruments.

3. It is recommended that future studies examine one particular training curriculum in order to minimize potential threats to validity and reliability, rather than pre- and post-test results from two different police professional development curricula (domestic violence and ethics) as used in this study.

4. It is recommended that future research to determine the potential success of police officers participating in professional development via DL expand the scope of research participants to include police officers from each state in the United States in order to extend the findings beyond the parameters of this study. It is further recommended that such research include other types of law enforcement personnel, such as sheriff's deputies, correctional officers, state police, and federal agents.

5. It is recommended that future qualitative DL-related studies utilize a design that provides opportunities for more detailed responses through face-to-face or telephonic interviews, or through the use of follow-up questions to various responses. Such studies would be beneficial to the development and implementation of programs
and curricula that would provide the greatest benefit within the police professional development field.

6. Recommendations 1-5 above address the previously described limitations of this study. Accordingly, limited research that improves upon the design of this study may be warranted, but the DL versus TI debate should not be the focus. Studies examining DL versus TI often produce conflicting results. The common denominator seems to be that each delivery method is appropriate within certain situations. Although the literature regarding DL versus TI within the area of professional development is limited, research results within adult education, including the results of this study, are consistent with those in higher education. Therefore, it is appropriate to conclude that studies comparing DL to TI have been "done to death;" and, it is time to end this debate. The emphasis of future DL-related studies should be on examining the effectiveness of particular programs and curricula within adult education and upon various learner groups, and avoid focusing on the delivery method of DL as a whole.

7. It is recommended that police administrators, program directors, curriculum developers and planners, and training staff utilize the results of this study in determining resource allocations and curriculum development in regards to DL for police professional development. Appropriate considerations would include officers' level of formal education, the availability and convenience of professional development opportunities, and the development of curricula in specific subject areas. Additional research also is warranted to determine the effect of previous exposure to DL upon potential online learning success. Such considerations can positively affect
the professional knowledge, skills, and abilities of police officers who participate in professional development training; officers' attitudes toward police professional development; the level and quality of police service delivered to citizens and communities; and fiscal responsibility to American taxpayers.
APPENDIX A

THE EFFICACY OF DISTANCE LEARNING FOR THE PROFESSIONAL DEVELOPMENT OF POLICE OFFICERS

UNIVERSITY OF SOUTHERN MISSISSIPPI

The purpose of this study is to determine the feasibility of development of, and participation in, distance learning (DL) or online distance education for the professional development of police officers. Distance learning (DL) or online distance education is defined as instructional material that is transmitted and delivered via a personal computer to learners at a location remote from that of the instructor(s). Instruction may include postings, discussion board, online materials, synchronous or asynchronous chat, and other methods, and allows self-paced, interactive, and individualized learning.

There are no immediate short-term benefits of the study other than those that participants might obtain from self-evaluation as a result of completing the survey instrument. This study ultimately will benefit program directors, administrators, curriculum developers and planners, and staff in determining resource allocations and curriculum development in regards to DL for police professional development. The survey instrument consists of four (4) pages and will take approximately 20 minutes.

Risks to participants in this study are extremely minimal. Participation in this study will not affect a participant’s status in his/her employment, eligibility for promotion, or future opportunities to participate in professional development training. Participation in this project is anonymous and completely voluntary, and all instruments will be destroyed after compilation of data. DO NOT PUT YOUR NAME ON THE SURVEY/QUESTIONNAIRE. Subjects may refuse to participate or withdraw from this study at any time without penalty, prejudice, or loss of benefits. Questions regarding the research should be directed to Mr. Brian Donavant at (731) 881-3510. This project has been reviewed by the Human Subjects Protection Review Committee, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research subject should be directed to the Institutional Review Board Office, The University of Southern Mississippi, Box 5147, Hattiesburg, MS 39406-5147, (601) 266-6820.

PLEASE COMPLETE THE FOLLOWING DEMOGRAPHIC INFORMATION

Fill in the blank or circle the appropriate choice.

GENDER: Male Female
YEARS OF POLICE SERVICE: _____ AGE: _____
RACE: White Black Hispanic Asian/Pacific Islander American Indian Other
YEARS OF FORMAL EDUCATION: HS/GED____ Some College____ BA/BS____ Some Graduate School____ Advanced/Terminal Degree____
HAVE YOU EVER PARTICIPATED IN DL? Yes____ No____
If Yes: Formal Education Setting____ Professional Setting____
APPENDIX B

The Test of Online Learning Success (TOOLS)

Directions: The following items measure your ability to perform different tasks. There are no right or wrong answers; so, your first reaction is usually best. Please do not omit any items. If an item does not relate to you, rate it as 0 (not applicable). Your efforts will help us to identify tasks that are most important for learner success. Using the following scale, rate how well each item describes you, by circling your response to the right of each item. DO NOT PUT YOUR NAME ON THE SURVEY.

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<td></td>
<td>Not Applicable</td>
<td>Strongly</td>
<td>Disagree</td>
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<td>Agree</td>
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<td>1.</td>
<td>I am capable of learning new technologies.</td>
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<td>2.</td>
<td>I am capable of sending and receiving e-mail.</td>
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<td>3.</td>
<td>I am capable of attaching files to an e-mail message.</td>
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<td>4.</td>
<td>I am a competent Internet browser.</td>
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<td>5.</td>
<td>I am capable of using standard word processing software.</td>
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<td>6.</td>
<td>I am capable of managing files on a computer.</td>
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<td>7.</td>
<td>I can download new software when necessary.</td>
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<td>8.</td>
<td>I can install new software when necessary.</td>
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<td>9.</td>
<td>I can copy and paste text using a computer.</td>
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<td>10.</td>
<td>I am capable of using discussion boards online.</td>
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<td>11.</td>
<td>I am capable of using chat rooms online.</td>
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<td>12.</td>
<td>I am capable of prioritizing my responsibilities.</td>
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<td>13.</td>
<td>I am a good time manager.</td>
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<td>15.</td>
<td>I am capable of making time for my coursework.</td>
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<td>16.</td>
<td>I am able to balance many tasks at one time.</td>
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<td>17.</td>
<td>I am goal-oriented.</td>
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<td>18.</td>
<td>I am self-disciplined when it comes to my studies.</td>
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<td>20.</td>
<td>I take responsibility for my learning.</td>
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<td>21.</td>
<td>I am capable of critical thinking.</td>
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<td>22.</td>
<td>I often leave tasks unfinished.</td>
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<td>23.</td>
<td>I require help to understand written instructions.</td>
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<td>24.</td>
<td>I wait until the last minute to work on assignments.</td>
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<td>25.</td>
<td>I have trouble comprehending what I read.</td>
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<td>26.</td>
<td>I need faculty to remind me of assignment due dates.</td>
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<td>27.</td>
<td>I need incentives/rewards to motivate me to complete a task.</td>
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<table>
<thead>
<tr>
<th>0 Not Applicable</th>
<th>1 Strongly Disagree</th>
<th>2 Disagree</th>
<th>3 Neither Disagree nor Agree</th>
<th>4 Agree</th>
<th>5 Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>28. Because of my personal schedule, I need online courses.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>29. It's difficult for me to go to training sites to complete course requirements.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>30. I need online courses because of my geographical distance from training sites.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>31. I need online courses because of my work schedule.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>32. I need the freedom of completing coursework at the time and place of my choosing.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>33. I can learn by working independently.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>34. I am self-directed in my learning.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>35. I am capable of solving problems alone.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>36. I need face to face interaction to learn.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>37. I need faculty feedback on my completed assignments.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>38. I am a good reader.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>39. I need classroom discussion to learn.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>40. I am capable of asking for help when I have a problem.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>41. I am comfortable learning new skills.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>42. I read carefully.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>43. I am a good writer.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>44. I am capable of following written instructions.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>45. I am capable of conveying my ideas in writing.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

TOOLS; Kerr, Rynearson, & Kerr, May, 2003

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APPENDIX C

THE EFFICACY OF DISTANCE LEARNING FOR THE PROFESSIONAL DEVELOPMENT OF POLICE OFFICERS

UNIVERSITY OF SOUTHERN MISSISSIPPI

Distance Learning (DL): Instructional material that is transmitted and delivered via a personal computer to learners at a location remote from that of the instructor(s). Instruction may include postings, discussion board, online materials, synchronous or asynchronous chat, and other methods, and allows self-paced, interactive, and individualized learning.

Traditional Instruction (TI): Instructional material that is delivered in a classroom, using books and workbooks, attended by several learners being taught by instructors.

PLEASE REFER TO THE ABOVE DEFINITIONS AS YOU ANSWER THE FOLLOWING QUESTIONS IN YOUR OWN WORDS

1. What do you like most about distance learning for police professional development training? If you have never participated in professional development training via DL, what do you think you would like most?

   ______________________________________________________
   ______________________________________________________
   ______________________________________________________

2. What do you dislike the most about distance learning for police professional development training? If you have never participated in professional development training via DL, what do you think you would dislike the most?

   ______________________________________________________
   ______________________________________________________
   ______________________________________________________

3. If you had to choose, which method would you choose: distance learning or traditional instruction? Why?

   ______________________________________________________
   ______________________________________________________
   ______________________________________________________

4. Do you feel that DL is an appropriate methodology for delivery of police professional development training? Why or why not?

   ______________________________________________________
   ______________________________________________________
   ______________________________________________________

5. Please provide any comments you feel are pertinent regarding the use of DL for delivery of police professional development training or other issues relevant to police training (what types of training are most appropriate for the use of DL, administrative support for police training, appropriate frequency of police training, etc.).

   ______________________________________________________
   ______________________________________________________
   ______________________________________________________
The project has been reviewed by The University of Southern Mississippi Human Subjects Protection Review Committee in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months. Projects that exceed this period must submit an application for renewal or continuation.

**PROTOCOL NUMBER:** 26052205  
**PROJECT TITLE:** Efficacy of Distance Education for Professional Development of Police Officers  
**PROPOSED PROJECT DATES:** 01/01/05 to 12/01/06  
**PROJECT TYPE:** Dissertation or Thesis  
**PRINCIPAL INVESTIGATORS:** Brian W. Donavant  
**COLLEGE/DIVISION:** College of Education & Psychology  
**DEPARTMENT:** Adult Education  
**FUNDING AGENCY:** N/A  
**HSPRC COMMITTEE ACTION:** Expedited Review Approval  
**PERIOD OF APPROVAL:** 07/31/06 to 07/30/07

Lawrence A. Hosman, Ph.D.  
HSPRC Chair  
8-02-04

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REFERENCES


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*Title 42, United States Code §§14090 et seq. (1994).*


