

An Evaluation of Computer Based Training for Police Radar Operators

Paul E. Korschak

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AN EVALUATION OF THE EFFECTIVENESS OF COMPUTER-BASED
TRAINING FOR POLICE RADAR OPERATORS

by

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Abstract

The purpose of this study was to examine two instructional methods for delivering a radar operators training class for members of a municipal police department. The first method examined was the traditional classroom-based training with a certified radar instructor. The second method was a computer-based training (CBT) course based on the instructional material from the classroom-based course. The CBT course was administered on CD-ROM using the police department's Windows® based computers. This study compared the two methods of delivery to determine if the CBT course was as effective as the traditional classroom-based course.

Effectiveness was measured by the completion times of the two courses, examination scores, and overall participant satisfaction levels. These measures were conducted using quasi-experimental design that involved two sample groups. The total population was sixty-nine police officers. The sample contained fourteen participants, divided into two equal groups of seven.

The independent variable was the instructional method. The dependent variables were the course completion times, examination scores, and the satisfaction levels of the participants. Of the two groups of police officers, Group 1

received the CBT for radar operators, while Group 2 received the traditional classroom training. Data was gathered regarding the completion times, test results, and participant satisfaction levels of the two courses. A statistical analysis of the data was conducted to determine the difference in course completion times, test scores, and participant satisfaction levels between the two courses.

Dedication

I would like to dedicate this dissertation to my wife Stephanie, for her never ending support, encouragement, and understanding while pursuing this personal goal. I would also like to thank my mother and father for their support, wisdom, and guidance on my journey down the road of life.

Acknowledgements

I would like to thank my mentor, Dr. Mark Rossman, for his guidance and support, both academically and professionally, during my research and writing. I would also like to thank my other committee members, Dr. Dave Balch, Dr. Barry Persky, Dr. William Bailey, and Mr. Robert Wignall, who each provided their personal and professional expertise that allowed me to achieve this accomplishment.

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CHAPTER 1. INTRODUCTION

Introduction to the Problem

Police departments are responsible for conducting continuous training and certification of police officers. One of these training responsibilities is the initial certification and recertification of police officers in the use of traffic radar devices. Traditionally, these initial and recertification courses are taught by a state certified instructor in a classroom setting. As the agency continues to grow, it has become increasingly difficult to schedule and train police officers in radar operation.

The twenty-four hour operations of the agency, different work schedules of employees, overtime duties, and extra responsibilities such as court appearances make this training increasingly difficult to plan and initiate. In addition, the cost of training officers on a recurring basis continues to increase. These costs are associated with overtime paid to officers who attend training on their normally scheduled time off, and compensation for the instructor who would otherwise be performing other duties during his or her regularly scheduled hours.

Police departments are constantly searching for ways to reduce overtime and maximize officer availability, while

continuing to provide adequate training to its employees. Many training managers and administrators believe that the implementation of computer-based training (CBT) for some training courses may achieve these goals.

Background of the Study

Law Enforcement agencies across the country are responsible for timely and pertinent training of their respective employees. Most of this training is conducted within the agency or "in-house" and involves repetitive instruction for certification purposes.

Training within the law enforcement community has expanded over the last three decades, and is now considered one of the most important aspects of the profession. Not many occupations are tasked with the responsibilities that law enforcement officials must undertake on a daily basis. Recognizing this, the courts, politicians, and the community rely on the proper and thorough training of the nation's law enforcement officers to perform their jobs effectively.

As the demands on law enforcement have increased over the years, so have the demands on individual departments to provide adequate training. Specific training requirements are created by regulatory agencies and it is the

responsibility of the individual law enforcement agencies to implement the mandated training. Mandatory training can become a burden on even the largest departments around the country. Individual departments must develop a training program, select and train instructors, schedule training sessions, and often pay enormous amounts of overtime money for employees who are off-duty at the time the training is provided.

Before the introduction of computer technologies, these concepts were accepted as a normal course of business, one that until recently was unavoidable. Now, with the implementation of computer technology, the vast expansion of the Internet and corporate intranets, multimedia applications and the ease and relatively small cost of production, the law enforcement community is shifting out of a period of acceptance and into one of positive change. The development of these products has allowed law enforcement administrators to avoid hiring professional trainers, discontinue complicated scheduling, and potentially save millions of dollars in taxpayer money through the use of technology in training.

As technology continues to develop and police departments' welcome its introduction, questions as to its

applicability to criminal justice training have arisen. Agency heads and training managers need assurance that traditional classroom-based certification courses can be successfully transformed into computer-based training courses.

Statement of the Problem

Municipal police officers normally attend initial certification and recertification training in the use of police traffic radar in an instructor led, classroom-based training session. The administrators' of the department have become increasingly concerned with the time required to conduct this training, the actual skills learned, and the overall participant satisfaction of the training and are interested in exploring possible alternatives to the traditional format. Because of the continuing advancement in computer technology and its use as a training tool, a computer-based training program was previously developed to deliver this training to members of a municipal police department.

Research was conducted on adult learning theory, instructional strategy, the effectiveness of computer-based training, measuring student satisfaction, and the use of technology in criminal justice training. The focus of the

research was to identify attributes and theories that would contribute to and reinforce the use of computer-based training in the criminal justice field.

Once the historical background was established, it was necessary to determine if computer based training is a viable and effective alternative to the traditional classroom based training. Therefore, the topic of this study is to determine the effectiveness of computer-based training for police radar operators.

Purpose of the Study

The purpose of this study was to determine if a computer-based training program based upon the traditional classroom-based training is an effective means of delivery for the radar operators' course for police officers.

The specific objectives of the study were to examine course completion times, overall test scores, and participant satisfaction levels to measure effectiveness of the overall training program.

Hypothesis

This study addressed the following hypotheses:

Hypothesis: There is a significant difference in the mean test scores, course completion times and student satisfaction levels for participants in the computer based training and the classroom-based training for police radar operators.

Null Hypothesis: There is no significant difference in the mean test scores, course completion times and student satisfaction levels for participants in the computer based training and the classroom-based training for police radar operators.

Significance of the Study

The need for job related and in-service training for criminal justice professionals was recognized by the President's Commission on Law Enforcement and the Administration of Justice (1967), the National Advisory Commission on Civil Disorders (1968), the Commission on the Causes and Prevention of Violence (1969), the American Bar Association Project on Standards for Criminal Justice (1972), and the National Advisory Commission on Criminal Justice Standards and Goals (1973) (More & Wegener, 1996). In addition, in 1978, the Police Training Institute (PTI)

began exploring the instructional feasibility of using teaching computers for police occupational training on the University of Illinois PLATO Computer-based Education System (Walker, 2000) and determined that computer-based training for police officers is a viable training option.

A review of the literature in the area of computer-based training revealed numerous studies describing the advantages of computer-based training in private industry and government. Others showed the need for increased training in the criminal justice field. However, very little information was discovered regarding the utilization of computer-based training for criminal justice professionals in certification programs, or its effectiveness in relation to traditional classroom-based criminal justice training.

This study fulfills the need to determine if computer-based training for police officers is an effective alternative to traditional training for police certification programs. It also provides a basis for further exploration into the use of CBT for other law enforcement training, and serves as a model for program designers and training managers in the use of CBT for law enforcement training.

Definition of Terms

The following terms are defined operationally as used in this study:

Police radar devices (radar, police radar). These are electronic devices used by police officials to measure the speed of vehicular traffic. Radar is an acronym for Radio Detection and Ranging. These devices are produced by a variety of manufactures under several different trade names, however the underlying principles of its use are the same.

State certified instructor (radar instructor, instructor). A state certified instructor is a person who has taken a course of study in the methods of instruction of police officers and has specific training in how to conduct police radar classes. This person receives certification from a regulatory agency to conduct radar training and certify radar operators at police departments and academies.

Computer-based training (CBT, computer assisted training). Computer-based training is a method of delivering training material through a personal computer without the need for a live facilitator.

Mandatory training. Mandatory training is training that is required by a regulatory agency to maintain certification or status.

Internet. Initially created for government agencies to share information, the Internet has grown into a worldwide network of government, industrial, and private computer systems able to interact and share information.

Intranet (corporate intranets). Intranets are private networks of interconnected computers within an organization. Unlike the Internet, an intranet is not publicly accessible and information can only be shared with others on the private network.

Multimedia based training. This form of training involves the delivery of educational materials "using the combination of text, sound, pictures, animation, and video". (Microsoft Corp, 2001).

Traditional classroom-based training. This type of training consists of training in a physical setting where the students are physically present and receive instruction from a live facilitator.

Effective means of delivery. For the purpose of this study effectiveness was determined through an evaluation of

course completion times, participants' test scores, and satisfaction levels.

In-service training. In-service training consists of training that is delivered by an individual agency by certified instructors to members of the agency.

CD-ROM. A CD-ROM is a compact disc, read only memory. It is a method of storing data that can be retrieved utilizing a personal computer.

Hyperlink. Hyperlinks are multimedia elements that "creatively connect the different elements of a multimedia presentation using colored or underlined text or a small picture, called an icon, on which the user points the cursor and clicks on a mouse". (Microsoft Corp, 2001).

Assumptions and Limitations

This study assumed that the police officers that participated in the study have similar qualifications and experiences related to the operation of police traffic radar devices. Considering the standardized basic training process that all police officers must undergo, and that all of the participants are members of the same department, the background and qualifications are assumed to be similar.

It was also assumed that the researcher, being a member of the same organization as the participants, would not bias the outcome of the study.

This study had several limitations in that the participants were divided into two groups that were exposed to different training methodologies at different times. Although the participants are all police officers and members of the same department, some may have been exposed to previous forms of radar operator training. The participants were not randomly selected for the study, but were identified as those who were readily available due to business necessity.

The researcher has also recognized the possibility of instructor bias in the classroom-based training session. This potential bias does not reflect upon the professionalism of the instructor, but recognizes that the instructor has conducted this training numerous times and is intimately familiar with the questions included in the end of course exam. This knowledge may influence the instructor's teaching style and increase the propensity to "teach to the test", thereby effecting the test scores of the participants. Another noted limitation was the fact that the CBT program was not subject to extensive testing

and evaluation before being used in this study. Although the content and functionality was reviewed by a group of subject matter experts, the program did not undergo comprehensive alpha or beta testing. Finally, there was potential for bias in that the researcher is an employee of the organization and the participants were aware that the researcher also created the CBT training program.

Organization of the Remainder of the Study

Chapter Two of the study will discuss the appropriate literature related to the effectiveness of computer-based training for radar operators. It provides a theoretical background into adult learning theory, and reviews the literature on instructional strategy, the effectiveness of computer-based training, the use of technology in criminal justice training and measuring student satisfaction in training programs. Chapter 3 discusses the research methodology selected to examine the problem and includes the population and sample, research design and instrumentation. Chapter 4 will present and analyze the data collected using the methods described in chapter Three. Chapter 5 will conclude the study with a summary of conclusions drawn from the analysis of data in chapter Four. Chapter 5 will also provide recommendations for

future research in computer-based training in the criminal justice community.

CHAPTER 2. LITERATURE REVIEW

Introduction

The purpose of this study was to determine the effectiveness of computer-based training in delivering radar operator training to police officers. In order to provide a broad overview of the topic, the literature review was divided into the following sections: a) adult learning theory, b) instructional strategy, c) the effectiveness of computer-based training, d) measuring student satisfaction and e) the use of technology in criminal justice training. These sections were designed to a) establish a historical context for the study, b) assess previous studies in the area of computer-based training, c) justify the purpose of the study, d) aid in the selection of the research design and methodology, and e) establish a theoretical framework for the study.

Part One: Adult Learning Theory

Because this study focuses on the training of professional criminal justice professionals, it is important to review the pertinent literature regarding adult learning theory. Although many different theories exist regarding the ways in which adults learn, a common theme throughout the research is that adults learn